AFTER THE BATTLE

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Front Cover: An exercise in obliteration. The Italian-held island of Pantelleria was bombed into submission in a concerted aerial campaign in May-June 1943.

Centre Pages: Wreck discovery on Hawaii. The rusting remains salvaged from the *Arizona* in 1942 now lie at Waipio Point in Pearl Harbor. (Joe Dovener)

Back Cover: The Eternal Flame at the magnificent Shrine of Remembrance in Victoria, Australia which was lit by Queen Elizabeth II in February 1954. (David Mitchelhill-Green)

Acknowledgements: The Pantelleria story is partly based on the US Army Official History volume by Albert N. Garland and Howard McGaw Smith: *Sicily and the Surrender of Italy* (Washington, 1965). The Editor also gratefully acknowledges the assistance of Frederick Galea of the National War Museum Association in Malta for making Edward Woolley's archive material available to us.

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DAVID O. HALE 1939-2004

It was with great sadness that I learned of the death on October 21, 2004 of my long-time friend and colleague, David O. Hale of Woodbridge, Virginia.

Dave first wrote to me in June 1975 while serving in Germany with the US Army 66th Military Intelligence Group. I had only just begun producing *After the Battle* so was extremely grateful for his enthusiastic interest and offer of assistance with research, all the more helpful after Dave was posted to Washington. There he worked for the Counterintelligence Directorate and the Defense Intelligence Agency so was well placed to carry out research in the nearby Pentagon library and the US Army photo archive (long before all the material was deposited in the National Archives). Dave basically photocopied every picture that we were ever likely to need so we were able to build up our own reference file in London.

Dave had also served in Vietnam with the 2nd Battalion, 20th Artillery of the 1st Cavalry Division, at one stage as a Huey gunner *(above left)* with Lieutenant Colonel Morris Brady, the battalion commander.

Sadly, early in the 1980s, Dave was struck down by the debilitating MS illness but he continued working in the Pentagon with fortitude, albeit ending up wheelchair bound.

I can honestly state that I could not have produced some stories in the magazine without David's help; for example the feature on Shepton Mallet Military Prison in issue 59 was only possible due to his work in the Pentagon library and National Archives, and his crowning glory for that particular story was tracing the plan showing the location of Plot X at Brookwood. Likewise he provided all the research for the Dostler case in issue 94.

As Dave's illness increasingly incapacitated him, I refrained from imposing on him but one of his last acts for me was to seek out mapping I needed for my recent book on Bonnie and Clyde.

David Hale was laid to rest with full military honours in Arlington National Cemetery on January 7, 2005. Amazingly we had never met in all the 30 years that I knew him. Too late, I had to be there to say goodbye.

WINSTON RAMSEY, EDITOR-IN-CHIEF

In May 1943 the Allies began an operation to seize and occupy the Italian island of Pantelleria, a small but vitally strategic stronghold in the central Mediterranean that gave the Axis domination of the sea and air routes between North Africa and Sicily. Seen as a pre-requisite for the Allied invasion of Sicily, the reduction of Pantelleria was achieved by means of an experiment in warfare: it was to be the first time that an attempt was made to overcome a strong defensive position by air attack alone. In three weeks of intense aerial bombardment the Allies dropped some 6,600 tons on the little island, completely pulverising its defences and shattering the garrison's morale to such extent that it actually surrendered before an assault landing was made. Here a planning officer points out Pantelleria during a briefing at the Pentagon in Washington in April 1943. (USNA)

PANTELLERIA

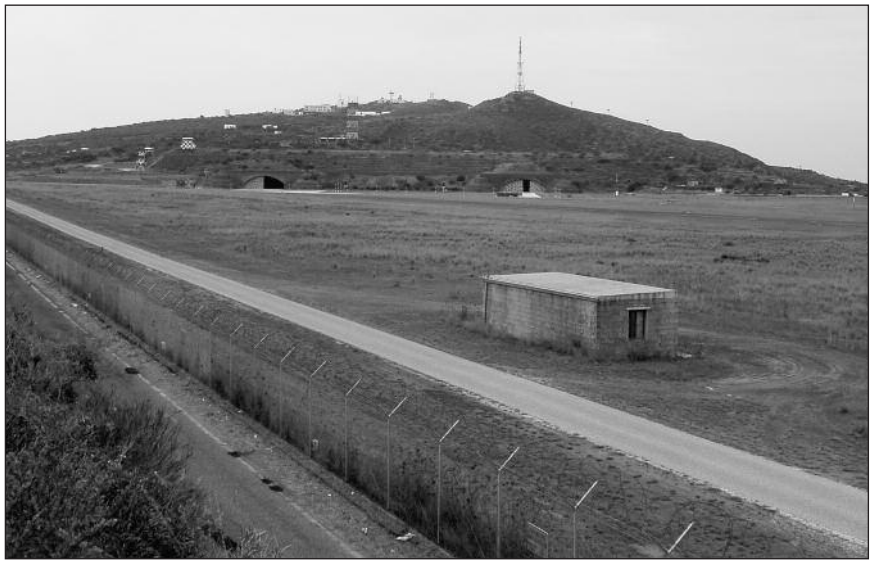
By Marco Belogi and Elena Leoni

Pantelleria is a small volcanic island in the central Mediterranean, located about halfway between Cap Bon in Tunisia and the island of Sicily. Elliptic in form, it is approximately 23 kilometres (16 miles) long and 9 kilometres (six miles) wide, with an area of 83 square kilometres (45 square miles). Rugged, with sheer cliffs rising out of the sea, the countryside is hilly bare rock with few level areas, the highest point being Montagna Grande, which rises 836 metres above sea level.

Lying in the channel between North Africa and Sicily, close to the main shipping route from east to west in the Mediterranean, the island is of prime strategic importance. The Italian government first began to reinforce Pantelleria's natural defences in 1920 and in 1926 Fascist dictator Benito Mussolini declared it a prohibited military zone. In 1935, during the friction between Italy and the League of Nations over the Abyssinian war, he took measures to greatly increase its defence works, ordering the construction of coastal and anti-aircraft batteries and an airfield. Developing it into a fortress island, he envisaged Pantelleria as Italy's answer to Britain's strategic stronghold island in the Mediterranean, Malta, which lies 120 miles further to the east.

The British were of course well aware of Italy's growing aspirations with Pantelleria and from June 1936 kept a close watch on the island, Supermarine Scapa aircraft from Malta's Kalafrana airfield conducting regular reconnaissance flights to it. In an attempt to stop this, on February 26, 1937 the Italian government issued a decree prohibiting any flights over Pantelleria and its relative territorial waters. This however did not deter the British aircraft, which continued observing the island from a six-mile distance.

Declared a prohibited military zone by Mussolini in 1926, Pantelleria had been developed into a fortress island from 1936 onwards. Well aware of its potential threat, the British kept a watchful eye on the military developments on the island. This oblique of the north-western part of the island was taken in 1936 by an RAF Supermarine Scapa of No. 202 Squadron flying from Malta. In the foreground is Porto di Pantelleria, the island's main port town. The harbour's outer breakwater pier, already under construction when this picture was taken, was still uncompleted by 1943. (PRO)



The wrecks have been cleared away and the perimeter fence been modernised but otherwise little has changed. The Margana airfield is still in use by the Italian Air Force and our comparisons there were taken by Captain Attilio Zenobi with special permission from the Stato Maggiore Aeronautica (Italian Air Staff).

Left: **Pantelleria's main military asset was the aerodrome with its capacity of about 80 aircraft and its underground hangar, which had been cut into the side of a hill and was thus impregnable. This picture (taken after the Allied capture of the island) gives a good view of the hangar and its two entrances. In the foreground are three wrecked Italian aircraft: (L-R) a Savoia Marchetti 82, a Fiat G12 cargo aircraft and a Savoia Marchetti 79 torpedo bomber. The triple-engined G12 belonged to the 48° Stormo (Wing) and was destroyed by the Italians themselves after it had been damaged in a landing accident on May 14 while attempting to bring in supplies for the besieged island. (IWM)**

By 1939, a military aerodrome had been completed behind Porto di Pantelleria, the harbour and town on the north-western side of the island, on a plateau 180m above sea level. Its underground aircraft hangar, 340m long and 26m wide and with a capacity of some 80 aircraft, had been hewn out from solid rock and was thus impervious to bombardment.

With war breaking out in 1939, possession of Sicily and Pantelleria gave Italy and its Axis partner Germany a domination of the air over the central Mediterranean that might have been complete had not the British held on to Malta. Many of the Axis aircraft that attacked Malta (see *After the Battle* No. 10) were based at Pantelleria.

Already in 1940, the British had wanted to reduce Pantelleria in order to remove the air threat which it posed. They had been on the brink of assaulting the island in January 1941 (Operation 'Workshop'), but had given up the operation as impracticable, and then greater events had elbowed it aside. An alternative plan for the invasion of Sicily (Operation 'Influx') was abandoned in February 1941, due to the appearance on the island of German bombers of the X. Fliegerkorps in January.

British plans lay dormant until the end of 1942 when they began to receive new consideration. Still, seizing Pantelleria would not be easy, for by now the island was a seemingly impregnable fortress manned by a very strong garrison.

A total of 22 shore and anti-aircraft batteries defended the island, giving a total of 112 guns. Most of the batteries were placed in the harbour area, the guns being manned by local militia under Milizia Artigliera Marittima (MILMART) command.

Left: **One of the two entrances of the underground hangar, pictured after the Italian surrender (note the damage on the rooftop caused by an Allied bomb). Designed by Pierluigi Nervi, a well-known architect of the Fascist era, the underground hall was partly dug out from the side of a hill but most of its protection was provided by a ten-metre covering of slats and earth. Both entrances could be closed with armoured doors. The vehicle in the right foreground is the only civilian car present on the island, a Fiat Balilla. Mussolini used it during his 1938 visit to Pantelleria. (IWM)** *Right:* **Little change 60 years later.**

The inside of the big hangar, photographed probably sometime in 1942. The weight of the soil covering was supported by a reinforcement of concrete slabs. The huge hangar could shelter 60 Macchi 202 fighters and six Savoia Marchetti 79 torpedo bombers, or 30 Macchi 202 and 12 SM 79s. The bombers were held on the ground floor while the fighters were tackle-lifted to a level above. Pictured here are a German Messerschmitt Bf 110 with an Italian SM 79 on the right.

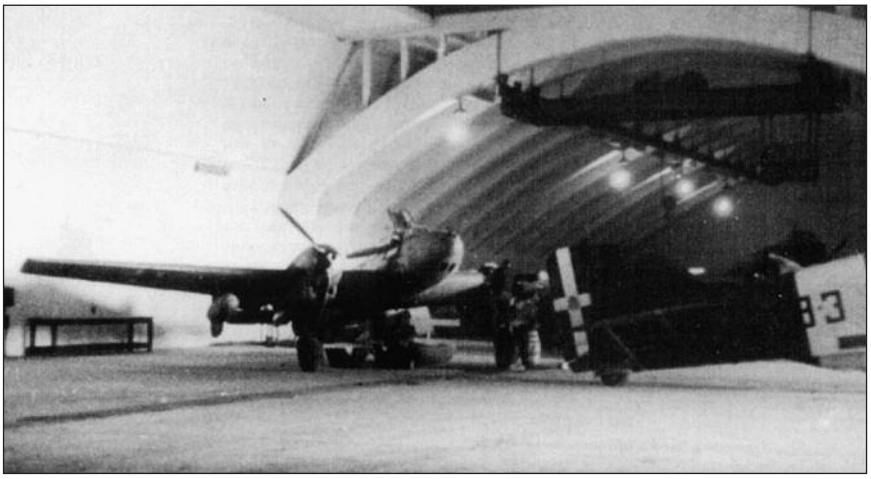
The main anti-naval power consisted of three shore batteries (Batteria Bellotti at Punta Karuscia, east of the port town; Grasso at Roncone di Salerno on the south-west shore of the island; and Rossi at Punta Limarsi in the south-east), each with four 152mm guns. In addition there were three batteries (Stroscio at Punta Spadillo in the east, Rametta in the south and Caminita on Monte Croce south of the harbour) equipped with a total of 13 of the less-powerful 120mm guns.

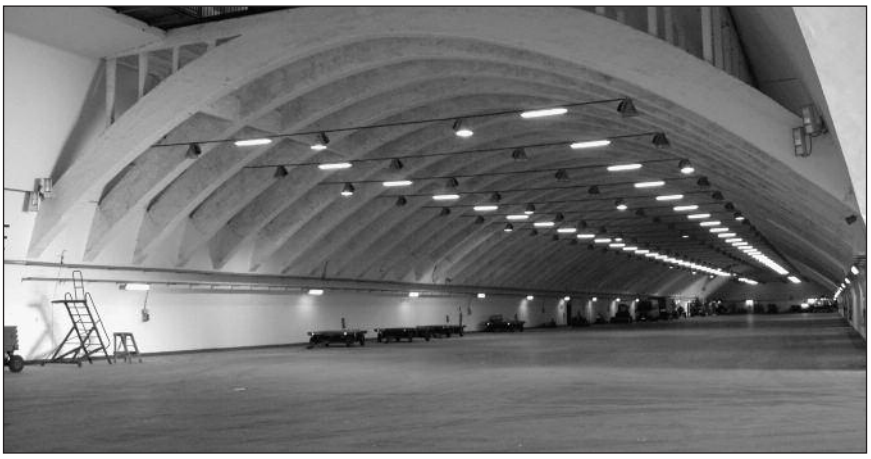
The mainstay of the anti-aircraft defences was provided by two batteries (at Punta Sidere, just south-west of the port, and at Punta Karuscia) equipped with a total of ten modern 90mm guns. The remaining 13 batteries had old 76mm guns, 72 in total, which were practically useless against medium and heavy bombers.

All pieces were in open concrete emplacements and defended by machine-gun posts, Oerlikon 2cm anti-aircraft guns and Breda 13.2mm automatic guns. A heavily protected telephone cable ran between the various emplacements and their fire-direction post. Many of the batteries had their own underground water tanks.

The Italian defences were strengthened to a degree by German reinforcements. A German four-barrelled 2cm FlaK 38 gun stood atop Monte Gelkhamar in the airfield area and six German 2cm guns were placed atop Monte Croce (close to the harbour area), where there were also a Freya surveillance radar and a Wurzburg D tracking radar. In total there were 600 German troops stationed on the island.

The Italian garrison was commanded by Admiral Gino Pavesi. It included the air force units, engineers, the MILMART militia, and a mixed brigade — the Brigata Mista Pantelleria — of 7,400 army troops — in all about 12,000 men. All they had to support them in ground fighting were six 81mm mortars, eight field guns and 13 tankettes. The troops were without combat experience and their morale was weak due to the recent defeats in North Africa and above all their isolation from mainland Italy.



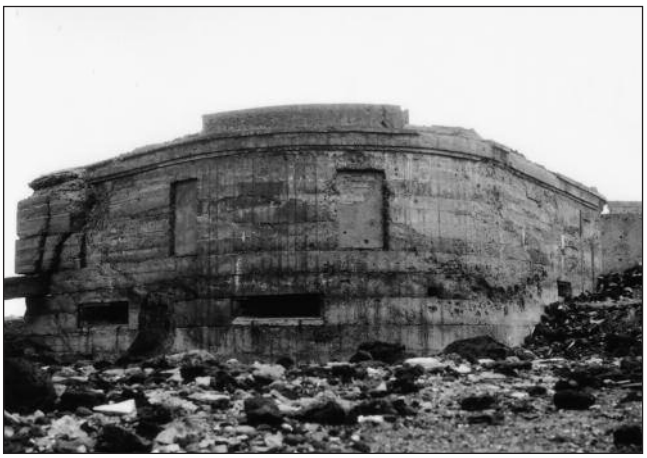


A perfect comparison, taken by Captain Zenobi with special clearance from the authorities.

To service the military garrison, fortified storages had been built, two for ammunition and one for fuel. The wireless station was in a tunnel at Monastero on the western side of the island. The supply warehouse, mill, bakery and power station had also been protected. To secure the provision of water, the army had constructed three wells, with a combined capacity of 200,000 litres per day, and three big water storage tanks. In addition there were two wells in the town, one privately owned which sold water to the Army and to civilians, and one to supply the airfield.

Almost 10,000 civilians were still present on the island, giving a total population of some 24,000. Despite the obvious threat to the island, no plans for the evacuation of the civilians had been made.

During the final days of the Tunisian campaign, the Allied air forces made a formidable three-day air attack on Pantelleria as part of their efforts to obstruct the Axis evacuation from Tunisia. The heaviest of these attacks took place on May 8 when 13 P-38 fighter-bombers attacked the island's aerodrome. The anti-aircraft defences proved ineffective and nine Italian aircraft were destroyed or damaged on the ground. Following this attack, most of the remaining aircraft were transferred to Sicily, leaving only four Macchi 202 fighters behind.



Left: **To secure Pantelleria against enemy aggression, the Italians built numerous defence works, including shore batteries, anti-aircraft batteries, bunkers and pillboxes all over the island.**

This is the pillbox next to the Punta San Leonardo lighthouse, one of several in the port area, camouflaged to look like a civilian house. (IWM) *Right:* **The pillbox survives to this day.**

On May 18, the Allies began their three-week campaign to bomb Pantelleria into submission. Here, a Douglas A-20 Boston of No. 24 (SAAF) Squadron (based at Soliman airfield in Tunisia) has just released its bombs on one of the inland targets, Monte Sant'Elmo, which was the location of the island's light anti-aircraft defences command post. (IWM)

The Allies had again begun to look seriously at Pantelleria at the beginning of 1943, when they started planning Operation 'Husky', the invasion of Sicily from North Africa (see *After the Battle* No. 77). In early February, General George C. Marshall, the US Army Chief-of-Staff, informed Lieutenant-General Dwight D. Eisenhower, the Allied Forces Commander, that the US Navy could not provide eight auxiliary aircraft carriers requested for air cover of the American assault on Sicily. Marshall suggested instead that Eisenhower seize Pantelleria for its airfield, from which Allied fighters could support the Sicily operation.

Though Eisenhower at first was not impressed, he set his Allied Forces Headquarters staff to prepare a plan to reduce Pantelleria, but only 'if the capture became necessary'. The conclusion of the planners was unfavourable. Pantelleria posed difficult problems even if unlimited resources were available. With preparations for Sicily limiting resources sharply, Pantelleria seemed altogether too tough. Pantelleria could be taken only at the expense of postponing the Sicilian assault, and planners felt that the importance of Pantelleria to the success of 'Husky' was too small to justify delay.

So the matter rested until May, when a revision of the invasion plan moved the entire Allied assault to the south-eastern corner of Sicily. General Eisenhower again considered seizing Pantelleria. He admitted that there were disadvantages in such an operation: possible heavy losses in men, ships and landing craft, which could be ill afforded on the eve of the Sicilian invasion; the fact that a successful defence of Pantelleria would put heart into the Sicilian defenders at a time when 'we sought to break it'; and the fact that the operation would point rather obviously to the next Allied move in the Mediterranean. Yet Eisenhower now saw great advantages in having the island: better air cover for the American landings; removal of a serious threat to Allied air and naval operations during the Sicilian invasion; the use of Pantelleria as a navigational aid for Allied aircraft and for bases for Allied air/sea rescue launches; denial of Pantelleria as a re-fuelling base for enemy E-boats and submarines; and elimination of enemy radio direction-finder and ship-watching stations to insure a better possibility of achieving tactical surprise for the Sicilian invasion.

Intelligence reports were promising. Only five Italian infantry battalions, for the most part untested in battle, defended Pantelleria and they were supported mainly by anti-aircraft batteries manned by militia troops. The only evidence of the state of their morale was 'the poor display of the anti-aircraft gunners when our forces raided on May 8'.

On May 10, perhaps still stung by an earlier rebuke by General Marshall about his 'lack of adaptability', Eisenhower decided to seize Pantelleria, but without expending heavily in men and matériel. To obviate a full-scale assault, he thought of making the operation 'a sort of laboratory to determine the effect of concentrated heavy bombing on a defended coastline'. He wished the Allied air forces 'to concentrate everything' in blasting the island so that damage to the garrison, its equipment and morale, would be 'so serious as to make the landing a rather simple affair'. Constant artillery pounding on the defenders of Corregidor in the Pacific in 1942 (see *After the Battle* No. 23) seemed to have had that effect and Eisenhower wanted 'to see whether the air can do the same thing'.

The British 1st Infantry Division, supported by appropriate naval forces, was to follow the bombardment and seize and occupy the island. The smaller nearby Pelagian Islands — Lampedusa, Linosa and Lampione — were also to come under attack. All three services established a headquarters at Sousse in Tunisia and went to work on what was christened Operation 'Corkscrew'.

The task of battering the island into submission was assigned to the North-West African Air Force, commanded by American General Carl Spaatz. Its two main forces, the North-West African Strategic Air Force under American Major General James H. Doolittle, and the North-West African Tactical Air Force under British Air Vice Marshall Sir Arthur Coningham, together could muster 12 American bombardment groups — four with B-17 heavy bombers, four with B-25 and three with B-26 medium bombers and one with A-20 light bombers — one group of A-36A and three of P-38 fighter-bombers, plus one group of Spitfire and four of P-40 fighters. The British contributed No. 205 Group equipped with Wellington bombers, four squadrons with A-20 Bostons, two with Baltimores, and one with Hurricane fighter-bombers. In total, almost 1,000 aircraft.

The 'Corkscrew' planners reckoned with considerable enemy opposition in the air. Despite the losses suffered at the end of May, the Axis still had sizeable air power left. Italian fighter strength on Sicily had been reduced to 90 aircraft: 52 Macchi 202, 23 Macchi 205 and 15 obsolete Macchi 200, plus seven Messerschmitt Bf109s operating under 1° and 53° Stormo (Wing). Luftflotte 2, still under Generalfeldmarschall Albert Kesselring, could muster around 130 Messerschmitt Bf109s under JG27 and JG53, around 80 FW190s under Sturmgeschwader 10 and Schlachtgeschwader 2, some 30 Bf110s under Zerstörergeschwader 26, and 20 Ju88s under NJG2 and Aufklärungsgruppe 122 — in all some 250 fighters and fighter-bombers.

To help in the planning of the bombing operation, on May 27 General Spaatz called in the help of his scientific advisor, British Professor Solly Zuckerman. Using statistical data compiled earlier in the war and available intelligence on the Pantelleria defences, within 36 hours Zuckerman produced rough numerical estimates on the bombing effort required. Taking into account the strength of the fortifications and the destructive power of various types of bombs, he calculated that 15 to 60 bursts in a 100-yard square were needed to silence a gun. With the current state of bombing accuracy this meant that as many as 400 bombs needed to be dropped on each of the 100-odd guns in order to ensure its destruction — or, in other words, 2,000 tons per square kilometre. As this was clearly beyond the air forces' capability within the time allowed, Zuckerman advised that the bombing be concentrated solely on those gun batteries which threatened the proposed landing sites.

To monitor the bombing campaign, Zuckerman and his small team (dubbed the Operations Analysis Unit) organised a rigorous registration of the number of sorties to and bombs dropped on each target. Ordering daily photo-reconnaissance sorties by Lieutenant Colonel Elliot Roosevelt's 248th (PR) Wing, and with the help of the local unit of photo-interpreters, they immediately assessed the results of each raid. If the target had been destroyed another would be selected. If not, the bombers would keep returning until the job was finished.

On May 13, Allied aircraft dropped leaflets over Pantelleria town warning the civilian population of the coming onslaught and giving them a five-day respite to evacuate their homes.

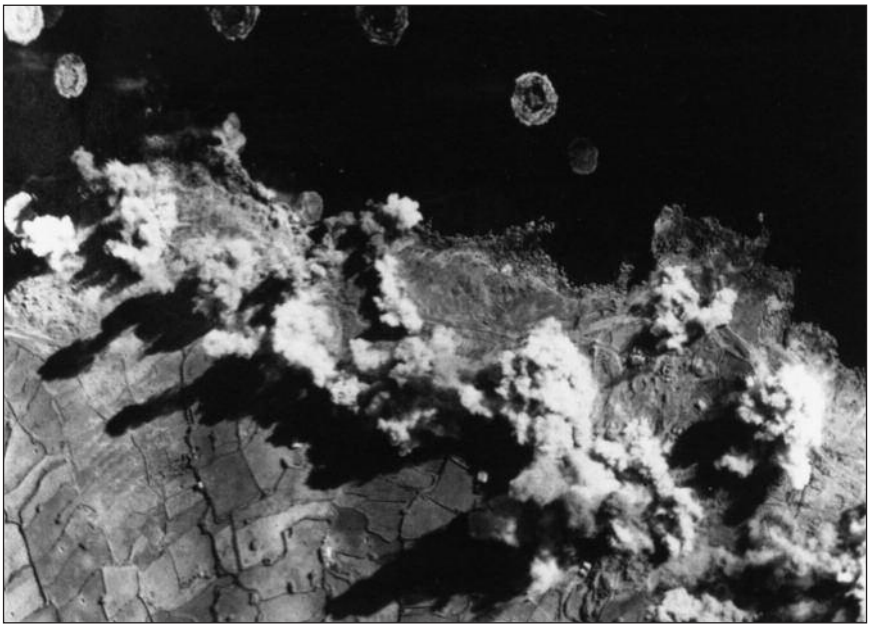
The Allied air offensive against Pantelleria was conducted in two stages. In the first phase, which lasted from May 18 to June 5, only the North-West African Strategic Air Force was engaged. Around 50 medium bombers and 50 fighter-bombers were sent out each day, while Wellington bombers

(dropping 4,000lb 'Blockbuster' bombs) and Hurricane fighter-bombers attacked at night. On May 21 P-40s and P-38s destroyed the Wurzburg radar, and on the 23rd the Freya installation was evacuated. This rendered the Axis fighters operating from Sicilian airports basically blind. The initial raids had been aimed at the harbour, the airfield and the gun batteries in general but, following Professor Zuckerman's advice of May 29, all attacks were concentrated specifically on the batteries along the northern shore. On June 1, the heavy B-17 bombers joined the onslaught. That same day, despite the loss of the radars, Axis fighters multiplied their defensive efforts, with little success. By the end of the first phase, 1,500 sorties had been flown and 900 tons of bombs been dropped on Pantelleria's port and aerodrome, plus another 400 tons on the gun batteries.

In the second phase of the air offensive, a six-day period which began on June 6, the bomber attacks were stepped up even further, the number of sorties growing from 200 on the first day to 1,500 on June 11. All squadrons of the North-West African Strategic Air Force (except the Wellingtons) and all bomber and fighter-bomber squadrons of the North-West African Tactical Air Force took part, maintaining almost continuous attacks. Between June 6-11, a staggering 5,324 tons were dropped in 3,712 sorties.

The increasingly heavy air pounding reduced Pantelleria to shambles. Casualties on the island were relatively few in number, but damage to housing, roads and communications was severe. By June 7, the port was in ruins, the town practically destroyed, and the electricity works knocked out, and several of the gun batteries destroyed or out of action. Despite efforts to re-supply the island by sea and air, shortages in water, ammunition and supplies began to have serious effects on morale.

Meanwhile, a British naval task force comprising the cruisers *Aurora* (command ship), *Newfoundland*, *Penelope* and *Orion*; the AA cruiser *Euryalus*; the destroyers *Waddon, Troubridge*, *Tartar*, *Jervis*, *Nubian*, *Laforey*, *Lookout* and *Royal* and the gunboat *Aphis* sailed for Pantelleria from Sousse and Bône. On June 8 the force took up station off the island and opened fire on its shore batteries with the aim to test the latter's combat power. (There had already been smaller naval shoots by single cruisers on the nights of May 31/June 1, June 1/2 and June 2/3 and on the morning of the 5th.) The bombarding ships were assailed by Axis aircraft, enduring three Italian and two German attacks, but the reply from the shore-based guns was weak and inaccurate. From this the Allies concluded that at least one battery had been reduced to silence and that the others had suffered severe damage.



From May 29 the bombing concentrated on the shore batteries on the island's northern coast. This is the Bellotti Battery at Punta Karuscia east of the port town being pounded. By June 11, only one of its four 152mm guns was still workable. (IWM)

As had been planned, immediately after the naval shoot, the island was offered a chance to capitulate. Surrender leaflets were dropped by aircraft. Members of the Italian garrison brought copies to the island commander but, as Supermarina (Italian Naval Command) proudly reported to Comando Supremo (Italian High Command) in Rome, Admiral Pavesi did not reply to the Allied ultimatum, Pantelleria would resist to the utmost. When, after a six-hour interval, the required surrender signals — a white cross on the airstrip and a white flag in the port area — did not materialise, the Allied air assault was resumed.

The call for surrender was repeated on June 10 but again fell on deaf ears. The single radio station working assured Comando Supremo that 'despite everything Pantelleria will continue to resist'. Successive telegrams, as many as 20 that night, told of Pantelleria's crumbling endurance, but none mentioned surrender.

On June 8, an Allied naval task force of five cruisers and eight destroyers shelled Pantelleria's coastal batteries. Conducted so as to appear to be the overture to a real assault, the bombardment's main aim was to test the shore batteries' strength and alertness after the three weeks of sustained bombing from the air. Of the 16 batteries that could have engaged the ships, only two returned fire throughout, one till it was silenced, and three others fired occasionally. This picture of the coastline east of Pantelleria harbour (note the large crane on the port's Nuovo Mole (new pier) in the far distance on the right) was taken from the cruiser *Aurora*. Observing the naval shoot from aboard this ship were General Eisenhower, the commander-in-chief of Allied Forces in the Mediterranean, and Admiral Sir Andrew Cunningham, the commander of Allied naval forces. (IWM)

Above: **Three days later, on May 11, the British 1st Infantry Division made an assault landing on Pantelleria, putting troops ashore at three places in the harbour area (the only location along the island's rocky coastline suitable for seaborne invasion). The landing met negligible opposition, the Italian island commander, Admiral Gino Pavesi, having taken the decision to surrender three hours earlier. Here troops disembark from an LCI (infantry landing craft) on the beach at Punta della Croce, in the western half of the harbour. Pantelleria town can be seen in the background with Monte Sant'Elmo in the far distance. (IWM)** *Below:* **The same waterfront, photographed for us by Captain Zenobi.**

Meanwhile, the British 1st Division and supporting units had begun boarding at Sousse and Sfax. Most of the infantry troops embarked on three infantry landing ships, the *Queen Emma*, *Princess Beatrix* and *Royal Ulsterman,* with others being carried on LCIs while and tanks, guns and equipment were put on LSTs and LCTs. During the evening of June 10 the assault force under Rear-Admiral Rhoderick McGrigor set sail for Pantelleria in three convoys, two fast ones and one slow.

Next morning, June 11, the invasion fleet halted about eight miles off the harbour entrance of the port of Pantelleria while the ground troops boarded the assault craft. The weather was good, the sea calm. Only a few low-hanging clouds flecked the sky. Pantelleria itself was cloaked in the haze and dust raised by air bombardment earlier that morning.

That morning Admiral Pavesi had followed his usual custom of holding a conference with

Left: **Italian prisoners are being collected in a narrow street in the eastern part of the town. The building in the left background is part of Pantelleria's former internment settlement for anti-Fascist political prisoners. Note the Bren Carrier in the foreground. (IWM)** *Right:* **This is one of the few streets in the town where the original houses remain.**

his staff even though Allied aircraft were plunging the island into a 'hurricane of fire and smoke'. Billowing dust clouds already blocked a view of the ocean, and the island commander was unaware of the Allied fleet offshore. Discussion at the staff meeting soon showed everyone in agreement that the situation had become untenable because of lack of water, communications, ammunition, and also because of the danger of disease. Furthermore, no Axis aircraft remained on Pantelleria; help from outside could not be expected; and the 24,000 people on the island had about reached the end of their endurance. Since Admiral Pavesi had wired Supermarina several hours earlier that 'the situation is desperate, all possibilities of effective resistance have been exhausted', he ordered his air commander to display a white cross on the airfield. Because it would take almost two hours for the order to reach all the posts, Pavesi set the time for the cessation of hostilities at 1100 hours. Shortly after he made his decision, the smoke and dust dispersed revealing the presence of the Allied ships offshore.

At about that time, the landing craft started their final run to the beaches. There was a strange stillness, the only noise being the pounding of the assault craft, the drone of fighters orbiting overhead. Cruisers started to fire at shore battery positions around 1100, and 30 minutes later escorting destroyers added their fires. No reply came from the island. At 1135, Flying Fortresses bombarded the island in 'the most perfect precision bombing of unimaginable intensity'. At 1145, the assault echelon commander released the craft.

Landing in the first wave was the 3rd Brigade (1st Duke of Wellington Regiment, 1st Shropshires, 2nd Sherwood Foresters), reinforced by a tank squadron of the 2nd Lothian & Border Horse and a battery of 2nd Field Artillery Regiment. If enemy resistance proved tough, the follow-up force — 2nd Brigade — would land aiming for Monte Sant'Elmo at 1255. In floating reserve were the 2nd Coldstream Guards (detached from the 1st Guards Brigade).

By noon the first wave was ashore on three beaches in the port area. Shortly afterwards white flags appeared on many of the buildings. Italian batteries ceased fire at 1130, while Allied naval bombing ceased at 1155. Between 1130 and 1200 the destroyer *Laforey* reported having spotted a white flag on Monte Sant'Elmo and aircraft reported a white cross on the airfield. For this reason, all further air and naval bombardments were cancelled at 1245.

Most of the old town was obliterated by the bombing. These soldiers are making their way across the rubble in Via Cagliari, just off Piazza del Municipio near the port. (IWM)

Today Pantelleria is a holiday destination reached by air from Palermo or boat from Trapani in Sicily.

At 1220, the 3rd Brigade gained a stronghold inside the town. The unit suffered only one loss, Corporal Sanderson of the 2nd Sherwood Foresters, who was hit by a mule and died. Shortly after 1330 Major-General W. E. Clutterbuck, the division commander, came ashore and found that most of the Italian garrison had already been taken prisoner. At 1730 the official surrender was signed in the underground hangar.

Left: **Five and a half hours after the landing, the formal surrender of Pantelleria was signed at the aerodrome. Here, Admiral Pavesi** *(left)***, the Italian island commander, discusses the terms with Major-General W. E. Clutterbuck** *(centre)***, commander of the 1st Division, and American Brigadier General Auby C. Strickland, commander of the 2690th Air Base Command, the Air Force formation set up to administer the island after its capture. Looking on are Brigadier-General Giuseppe Maffei, commander of the Brigata Mista (Mixed Brigade) Pantelleria, and (behind him) Colonel Michele Spina, commander of the Army Engineers on the island.** *Right:* **Watched by staff officers, Pavesi and Clutterbuck sit down to finalise the conditions prior to signing the surrender document. The Italian air force officer with the peaked cap bending over Pavesi's shoulder is almost certainly Lieutenant-Colonel Francesco Raverdino, commander of air units on the island. (IWM)**

British troops at the Punta della Croce gun battery, west of the port area. This was one of the 13 batteries on the island equipped with 76mm dual-purpose guns. An obsolete weapon dating from the First World War, it had a range of 12 kilometres against shipping but only reached an altitude of 18,000 feet against aircraft. The battery of four guns had already been badly damaged by Allied bombing on May 23, which had killed seven of the crew and injured five others, but it received the final knock-out blow on May 30. The ploughed-up landscape around the battery well illustrates the technique of concentrated carpet-bombing on small targets employed by the Allies to reduce Pantelleria. (IWM)

In all, 11,621 Italians (420 officers, 620 NCOs and 10,617 troops) and 78 Germans surrendered. Total Axis casualties as a result of the bombing were 36 soldiers killed and 103 wounded (108 and 200 respectively according to Allied sources). Of the civilian population, five had been killed and six injured. Aircraft losses during the battle were 13 Italian and 10 German aircraft lost against 15 American.

With Pantelleria in Allied hands, the three Pelagian Islands followed soon. Lampedusa had also refused the Allied surrender offer, the island commander notifying Rome that 'bombardments are continuing without interruption, both from the air and from the sea. Air support required urgently'. Instead of help, only words of intended cheer arrived: 'We are convinced that you will inflict the greatest possible damage on the enemy. Long live Italy!' On June 12 the island received 268 tons of bombs besides numerous shells from bombarding ships. Disappointed, resentful, feeling they had done their duty, the garrison of 4,600 men, after being ordered to do so by the island commander, raised white flags in surrender. Linosa fell the next day, June 13. The Allies found Lampione unoccupied.

Allied intelligence had overestimated the will to resist of the defending garrisons. Despite Fascist propaganda, Pantelleria and the Pelagian Islands were hollow shells manned largely by over-age and inexperienced individuals, many of whom had their homes on the isles. When the Allies attacked, quite a few chose to go looking after their families instead of remain at their posts. But against the overwhelming power of the Western Allies, there was probably little they could have done with their inadequate and obsolete equipment.

The day after the fall of Pantelleria, Professor Zuckerman and his team arrived on the island to do a ground survey of the damage wrought by the air bombardment. In the town they found the roads completely obstructed by rubble. Whole streets had been wiped out by the debris of houses that had collapsed into them, and access from one block to another was usually over mounds of rubble. All the newer multi-storied buildings had been damaged.

In the harbour, they found the piers and pillboxes seriously damaged. The communication system had been destroyed in such a way that not a single telephone worked. The destruction of the power station had been overcome with power generators, but lack of electricity had affected water-pumping.

At the airfield, the team found the runway strewn with about 70 craters. There were 84 abandoned Italian aircraft, five of which were inside the underground hangar, which remained substantially intact.

At the gun batteries, out of the 80 bombed guns only ten were completely out of service and only 45 appeared damaged in any way. About five per cent of the bombs had fallen within the efficiency area, a result that was only half of the expected accuracy. Even so, the sea and air bombardments had achieved the desired result: the gun platforms had been raised from their posts, electric installations been damaged, range-control and communication posts been destroyed and many other guns, which could have been operational, had been covered with so much debris that days would be needed to clear them. (The data accumulated by Zuckerman at Pantelleria were later put to good use in planning the bombing of German fortifications in France prior to D-Day in Normandy.)

The gun has been removed but this is the same emplacement today.

Above: **British troops moving along a recently cleared path through the port area just west of the old town. The heap of rubble on the left is what remains of the Italian Navy's torpedo storage depot which blew to smithereens after a direct hit. The detonation also damaged the western wall of the adjoining castle (off the picture to the left). On the right, still anchored at its mooring, lies a destroyed Italian motor raft. In the background stands the Cavalier Petrillo wine-factory, reduced to rubble but still with its characteristic chimney. (IWM)** *Below:* **The town has been completely rebuilt but largely in a modern style untypical for the island. Many inhabitants who remember the charm of the old town find the new buildings bland and ugly, and regret the loss of the nice Mediterranean atmosphere which existed before the war.**

Although the Italians had made preparations for demolition of vital installations, particularly at the airfield, none of these had been carried out. This and, above all, the garrison's speedy surrender, after the war led to accusations of defeatism among the garrison command and speculations about secret collaboration with the Allies. The latter allegation cannot be upheld as declassified Allied documents do not support, even in the most concealed manner, the possibility of any surrender agreement between Admiral Pavesi and the Allies. After all, Pavesi's decision to capitulate without a fight was amply justified by the sufferings experienced by the civilian population. (In fact, aware of the island's predicament, at 1010 hours on the 11th Mussolini had telegraphed a message instructing Pavesi to surrender at 1200 hours. As it happened, Supermarina did not relay the message until 1255 by which time the admiral had already acted on his own accord.)

The pulverised defences as they remain today. *Left:* **This is the anti-aircraft battery at Fossa del Russo which continued firing right up until the surrender.** *Right:* **Stroscio Battery fire direction post with one of the four gun emplacements on the left**

Surrendered Italian soldiers take a wash in the shallow water beside the inner port's short pier guarded by a British military policeman. On the right is the familiar silhouette of the town castle marking the western end of the old town. (IWM)

After the war, island inhabitants often contended that most of the destruction suffered by the town was in fact attributable to demolitions carried out by the Allies after the surrender, reputedly for propaganda purposes. Some witnesses remember seeing Allied cameramen and photographers recording houses being knocked down. Indeed, some demolition work was carried out a few days after the landing, but this was only to remove half-collapsed and dangerous buildings (the work was actually done by Italian Army engineers under Lieutenant-Colonel Michele Spina on orders from Admiral Pavesi).

However, aerial photographs from Allied and German sources taken at different dates leave no doubt that most of the destruction in the town was caused by the aerial bombing. Between May 18 and June 11 an estimated 755 tons (2,987 bombs) were dropped on the town, of which 124 tons (700 bombs) between June 9-11 alone. As late as June 4, the town appears relatively intact on aerial photos, so it is clear that most of its devastation occurred in the final seven days of the bombing. However, by that time most of the town's population had fled inland or taken shelter in rock tunnels and in the airfield hangar, so very few of them were there to witness the destruction wrought by the bombers in the final week.

As part of the 'Corkscrew' planning, the North-West African Air Force had created the 2690th Air Base Command under American Brigadier General Auby C. Strickland to govern the island and support the air units to be based there. Immediately after seizure of the island, the unit began clearing rubble from the harbour, opening up roads and filling craters on the airfield. On June 26, P-40s of the US 33rd Fighter Group began to operate from the airfield. Six days earlier, British aircraft had already begun flying from the airstrip at Lampedusa.

Eisenhower's laboratory experiment had been successful. Pantelleria and the Pelagian Islands gave the Allies a safer channel for shipping in the central Mediterranean and, more important, valuable airfields closer to Sicily and the Italian mainland.

For further reading on the subject, see the book by the same authors: Marco Belogi and Elena Leoni: Pantelleria 1943 — Mediterranean D-Day *(Gavardo, 2002) available from Liberedizioni, Via A. Leni, Gavardo (Brescia), Italy.*

The Barbacane castle has been restored and small boats now line the quays.

Left: **An American Army cameraman of the US 12th Combat Film Unit records the destruction in the old town. Many of Pantelleria's old inhabitants remember seeing the Allied cameramen at work. (USNA)** *Right:* **The ruined building has been cleared away and its site turned into a small square, giving a clear view of the castle.**

Sub-Lieutenant Edward Woolley, RNVR, (pictured *left* when a Lieutenant-Commander having been awarded a bar to his George Medal), was one of six sub-lieutenants who in October 1940 undertook a crash course for Rendering Mines Safe (RMS) at HMS *Vernon*, the mine-warfare establishment at Portsmouth. The German Luftmine — basically a naval weapon — had been first used against London the previous month as a blast bomb, and dealing with unexploded mines became top priority.

MY LIFE WITH THE PARACHUTE MINE IN THE BLITZ

By Sub-Lieutenant Edward Woolley

On October 4, 1940, in the middle of a comparatively peaceful life at HMS *Vernon*, the Admiralty's Mine Warfare Establishment at Portsmouth, 'Speedy', the personnel officer gets hold of me and tells me I am to do an 'RMS' course tomorrow. Not even knowing what RMS stands for I say very good, but don't feel so very good when I learn it stands for 'Rendering Mines Safe'. Apparently Jerry has been dropping magnetic mines by parachute on London and quite a few haven't gone off.

The course, which really consisted of only about one day, was taken under the direction of Lieutenant Commander John Ouvry whom I have always regarded with considerable awe as he took the first magnetic mine to bits at Shoeburyness (see *The Blitz Then and Now*, Volume 1, pages 52-55). Six of us took it, all sub-lieutenants like myself. The day we were due to go to London, however, the Blitz died down, and with all the mines cleared up we were told to stand by and await events.

Most of the party were rather relieved at this but my own feelings were rather mixed. At first I had, quite frankly, been somewhat frightened of the whole business but later had got used to the idea until I had reached the stage when it quite appealed to me.

Anyway, after a week with nothing happening, we were told to beat it, and went our separate ways. I went on to the base at Harwich to which I had just been posted as a maintenance officer with the minesweepers.

Having spent just one day at Harwich I received an urgent signal to proceed forthwith to Admiralty as it appeared that things were happening again. A fellow named Baker [Probationary Temporary Sub-Lieutenant Sidney Baker] accompanied me as he had been on the same course, and we left for London straight away by car.

We were both rather silent travelling up, wondering I suppose just what was in store for us. The part I hated most was the idea of being anywhere near London which was then getting a pasting by all accounts. Little did either of us think that before that day was over we should both of us have won the George Medal!

From the rather lurid press reports, I imagined life in London to consist of dodging bombs and throwing oneself in the gutter, but London is a big place, and a blitz doesn't necessarily mean that one is always under a rain of bombs. We stayed there over six weeks altogether and, though it was noisy sometimes and the sirens were on all night, we slept on a fifth floor for the whole time. We were only away about three nights and on one of these our hotel in the Strand got a direct hit! Not much damage though as the bomb burst in a water tank.

The Luftmine came in two sizes, the 5ft 8in LMA at 500kg and the LMB measuring 8ft 8in at 1000kg. Because the casing of the mine was much thinner than that of a bomb, a parachute was provided to retard the rate of descent. As the mine struck the ground, a clockwork fuse would detonate the mine after 25 seconds.

Left: **The tail cone usually broke free as a wire attached to the aircraft acted as a drogue chute to open the main canopy but in this case soft ground has broken its fall.** *Right:* **Quite a high proportion of mines failed to explode. This is normally how RMS officers would find the mine with the parachute deployed.**

ROTHERHITHE

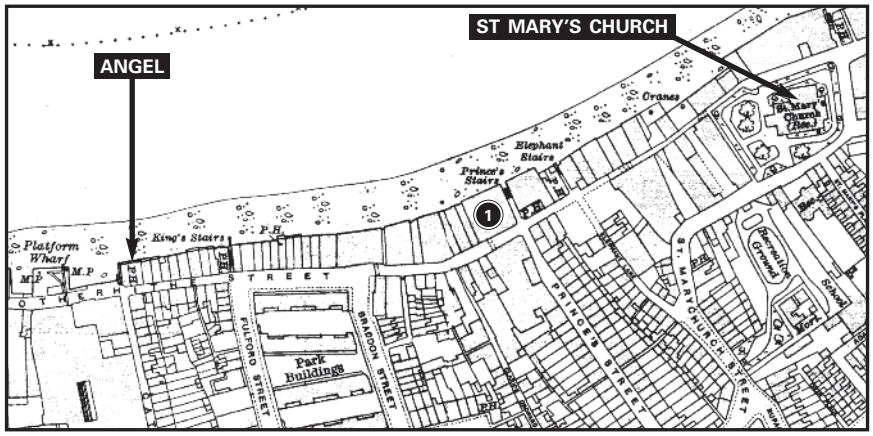
Anyway, to resume, we eventually arrived at Admiralty about 1430 and were shown straight up to the RMS department where we met the big white chief, Captain Currey RN The walls were plastered with maps covered with little flags which we learned were positions of mines, some dealt with, some not. And there were a lot of flags! Flags of a special red cross design indicated hospitals where some of the RMS people were recuperating which I thought was a pretty gesture.

The air raid warning went just then but no one seemed to take much notice, although I didn't feel so good as it was my first experience of a London warning, and I was quite resigned to sudden death. Captain Currey then got hold of me and said he had a particularly nasty job in a flour mill: how many had I done? None — Good God! — Well, somebody's got to do it, here's the address, your car's outside, good luck! Next officer! Just then a terrific blowing of whistles indicated immediate danger — everybody take cover — except you, Woolley, you've got a job to do, out you go. Nice place this!

True enough there is a Ford 10 down below complete with Army driver, rating and tools, so with a glance at the address off we set for Gillman & Spencer's flour mill in Rotherhithe. Neither the soldier nor the sailor knew London at all but fortunately I do so we found the place after a bit of running around. It was raining by this time and guns were firing in the distance and altogether I felt I'd rather be some other place.

The area was a poor district and had been evacuated. The position of the mine was soon found as it had gone through the roof of the building and the parachute was hanging down the outside wall. It took nearly an hour to find the person with the keys which didn't improve my morale much. Then I found that owing to previous damage I could only reach it by entering a building on the opposite side of the street and crossing the street by an overhead runway. Everywhere was pitch dark as the electricity was off and I had to fumble my way about as well as I could without even a torch. I really think that this route through to the mine was the worst part of the job, all alone in a deathly silence, by the aid of a rather inferior petrol lighter.

Eventually I saw a glimmer of light coming through the hole which had been made in the roof, and then the mine itself with its nose buried in sacks of flour, and only about three feet of it showing. Never have I seen a more sinister sight. This room was a store and had no windows. The flour was piled up in sacks to about four feet from the ceiling and to reach the mine I had to climb up the sacks and then wriggle on my stomach over to it. The slightest movement will start the clock of one of these things and then you have just

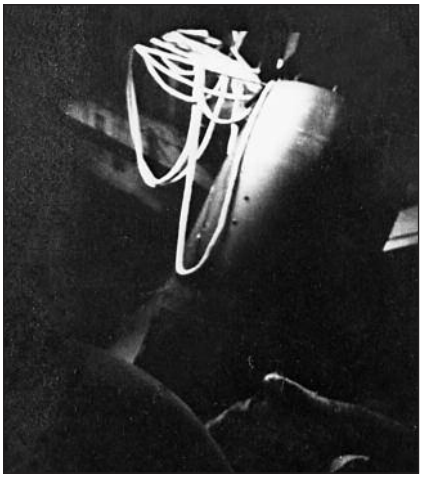


The fact that so many mines falling on land failed to go off gave the RMS officers defuzing them invaluable knowledge in the fight against the magnetic mine which were laid in sea lanes. Yet the work was fraught with danger as there was no way of knowing if the clock had already started and, for some reason, stopped just before detonation. The first weapon Lieutenant Woolley had to deal with — and we must remember this was only after one day's training — had fallen on Gillman & Spencer's flour mill [1] in Rotherhithe backing on to the River Thames.

22 seconds to get clear. As this was on the top floor, escape was absolutely impossible, but there was a loading hatch nearby which overlooked the Thames which I opened with the rather vague idea of jumping in — a distance of some 40 feet — if anything happened.

With that awful journey again I returned to the car and collected my tools. I also ordered the driver to move the car for safety which rather amused him as had it gone off whilst I was working on it, the damage to the car wouldn't have caused me much trouble. When I got back to the mine it looked even worse. Although I was in the heart of London, everything was so deadly still owing to the evacuation and lack of traffic. The only sound at all was the dripping of the rain through the hole onto the mine together, perhaps, with my knees knocking. The wetness of the sacks didn't improve my comfort and I really felt that I couldn't tackle the job. Currey said if I felt that way I was to leave it alone and no one would think any the worse of me. Then all of a sudden this was replaced by an entirely different and indescribable feeling. I thought, well, somebody's got to do the damned job if I don't. If it goes off I won't know much about it, and I certainly haven't got the guts to go back and say I don't like the look of it, so what the hell. With which I set to work.

Fortunately, after very gingerly moving only about three sacks, I reached the bomb-fuze, the 'piece de resistance' of the outfit. This was the only bit of luck I had on the job. I got the so-called safety horn on alright, which is supposed to stop the clock, although it was later proved that its effectiveness is very questionable. With the spanner on the keep ring, I tried to unscrew the fuze but it



Woolley found the mine (a Luftmine A which the Admiralty called a Type C) lying on top of a pile of flour sacks.

proved to be pretty tight. A little more pressure and it moved a fraction but, to my horror, a steady whirring noise indicated the clock had started. In that uncanny silence it sounded like an alarm clock going — which it

Left: **Then Rotherhithe Street was very narrow bordered by warehouses and commercial premises.** *Right:* **Prolonged strikes in the 1960s, together with the containerisation of goods, led to the decline of the London Docks. Most of the old buildings have been demolished but we were thrilled to find the old Angel pub still standing, even if it was shut up.**

The river frontage from the Angel to St Mary's Church. Gillman & Spencer's flour warehouse lay mid-way along . . .

certainly was anyway!

To this day I can't quite remember the next 60 seconds — it seemed like 60 years. I remember wriggling backwards over the wet sacks, losing my tools and cap en route, and making for the loading hatch I had opened, counting in seconds all the time. My whole life seemed to flash before me. I don't think I panicked though, I got to the hatch, looked at the river with intense loathing and decided I'd be no worse off to get blown in than to jump . . . 13 . . . 14 . . . 15 . . . soon know now, 17 . . . 18 . . . perhaps the safety horn is alright . . . but God, did I turn the pressure on? Damned if I remember . . . 21 . . . 22 . . . have I been counting too quickly? . . . 28 . . . 29 . . . 30. No, it must be alright.

A few seconds to regain my composure and wipe my dripping forehead, and then back over the sacks again, very slowly and very quietly, but not a sound from the clock. In case the safety horn lost pressure it was imperative to get the fuze out quickly now but I'd dropped the damned spanner and it took me another hectic five minutes to find it. My troubles were nearly over now though, as the ring came off fairly easily, but I decided to take no risks pulling the fuze out, so I fixed a line to it and pulled it out from a barge on the river outside. Back on that damned journey to the mine again, and there — wonderful sight — the fuze lying innocently by the side of the mine. Another minute's work removed the gain and detonator and I breathed freely for what seemed like weeks. I just sat there for about five minutes, not knowing whether to laugh or cry, but feeling rather stupidly proud of myself.

It was getting pretty dark by now and, although the job was not completed, the mine was safe where it was, so I decided to call it a day and returned to Admiralty. Captain Currey was very pleased about it and told me to go off and sling my hammock.

This shook me up a bit as what I had in mind was a bit of a night out, but it appeared that slinging a hammock merely means find a sleeping place and is not to be taken literally!

Thus I went to the hotel in the Strand where I had arranged to meet Baker. He wasn't there and they assured me that there was no accommodation so I was a bit fed up. I realised I must look pretty awful as I only had a blue raincoat on and no cap, having lost this, and was covered all over with flour, so I undid my coat and showed them a bit of gold braid to assure them I was a Naval Officer, and to my relief got a room. Baker came in soon after having completed his job, which hadn't caused him much bother, and we spent the rest of the evening eating and getting rather tight which afforded much relief, with the result that I slept very well that night and woke up at seven next morning mildly surprised to find myself alive after a night in London.

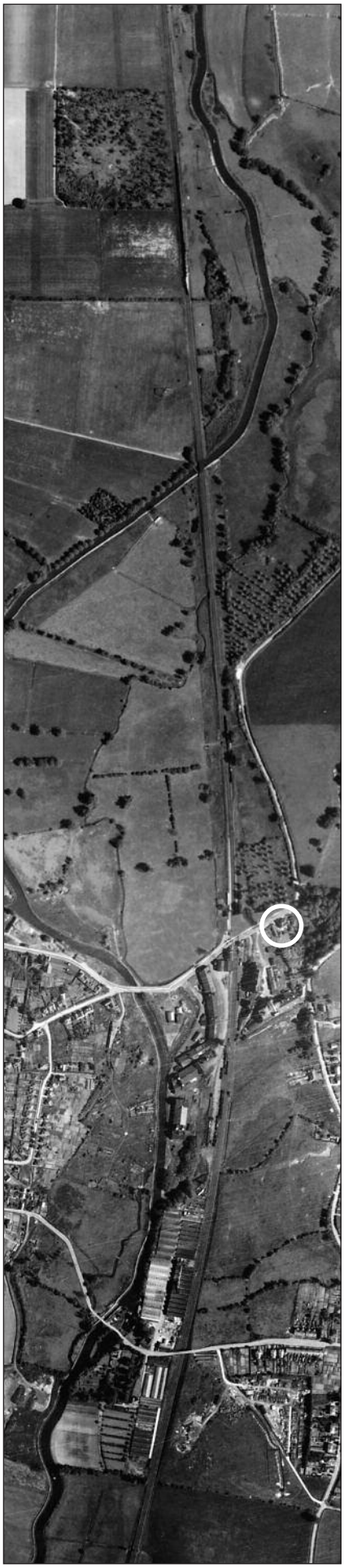
Returned to Rotherhithe bright and early to finish the job but had to wait for a party of Royal Engineers to shore the mine up so the rest of the flour bags could be moved to make the remaining fuze and clock accessible. Having done this, it didn't take very long to remove these bits although the primer was tight and had to be encouraged with a hammer and chisel. This completed my part of the job and the REs rigged up a block and tackle and lowered the body to the ground. A pub nearby requested permission to open up again, which I gave, and the landlady insisted on numerous drinks all round. By this time of course, the local residents had returned, and although it was a very poor district, the gratitude of the people was most moving, and I was glad to get in the car and drive away.

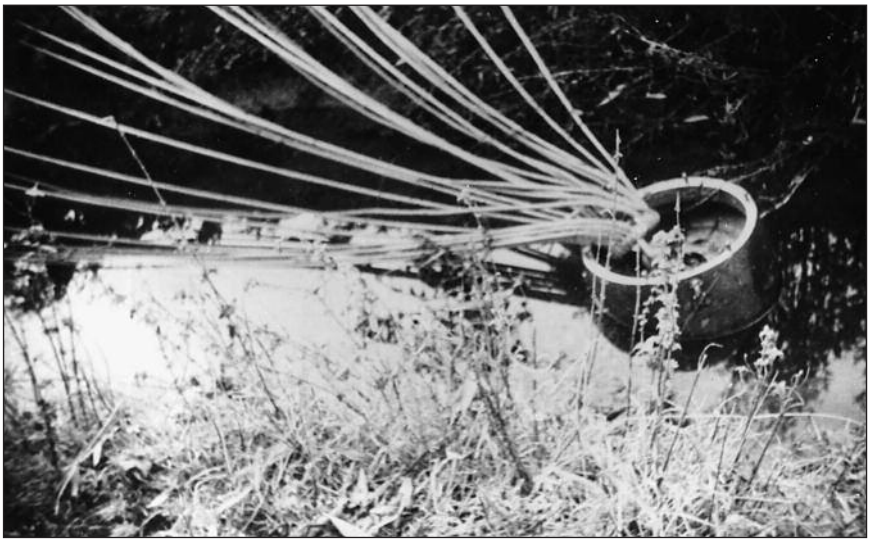
So ended my first and probably my most trying job, though not my most difficult. It earned — or shall I say won me — the George Medal and the same for my rating who sat in the car 400 yards away while I did it. He did, however, find the cap I lost — maybe he got it for that!

Returning to Admiralty I was told no more mines to do but to hang about London and be available at one hour's notice, so away to my hotel for a marvellous hot bath and an hour's work trying to get wet flour

. . . where the apartment block now stands on the right.

It is hard to believe that the heart-stopping drama of 1940 took place where this up-market, river-front residence now stands.





Lieutenant Woolley appears to have photographed all the incidents that he had to deal with although unfortunately his photos (now in the Malta War Museum) are uncaptioned, giving a lot of detective work to establish which is which. This is undoubtedly the Sawbridgeworth mine as he found it half submerged in the ditch.

off, or rather out of, my uniform.

SAWBRIDGEWORTH

The lull soon ended as the following morning I was sent down to a village called Sawbridgeworth in Essex to investigate an 'object' which was alongside a railway and holding up an important munitions train. With my rating and driver we shot down in the Ford and found the mine alright, but in what a position. There was perfectly open country and about a ten-acre field with a stream, or rather a ditch, winding through it. This was only about three feet across and perhaps six feet deep, but, with all that land about, the mine had to fall bang in the middle of this ditch and was buried so that only about six inches of it was visible with the parachute still attached and lying on the bank.

It was obviously impossible to render safe where it was so after some delay I got hold of an RE party from Chelmsford, and we tried pulling on the parachute with a lorry and a long line. The only effect of this was to pull the parachute away as the soluble plug probably dissolved with being in the water. This destroyed any chance of pulling the mine out so I decided to counter-mine but it just wouldn't play. Two attempts with small charges near the tail merely made matters worse as it blew away the part visible and left everything under water. It was now getting dark and we had to leave the job. It was too late to travel back to London so I returned to Chelmsford with the REs and spent a pleasant evening in the local pub.

We were up bright and early next morning and set off in fine weather to see what sort of luck was in store this time. We found the mine totally submerged and only found the position by our numerous footprints. It was obvious that we should have to get rid of some water so I had the REs fill sandbags and dam the ditch on each side of the mine which took quite a time. In the meantime I managed to scrounge the loan of a pump from the local Auxiliary Fire Service who were very helpful. I wasn't at all happy about his pump as we had to have it fairly near the job and it was a single cylinder with a good thump about it and plenty of vibration. Anyway it did the job eventually after stopping numerous times through being clogged with mud, and finally the top of the mine became

He describes the location as being alongside the railway (the LNER London to Cambridge line) and the photo *(opposite)*, taken after the mine was detonated in situ, certainly looks as if the photographer was standing high up on the railway embankment. The track runs across water meadows bisected by the River Stort and the navigation canal and today it is a marshy nature reserve *(above)* heavily overgrown. Although we tramped about on both sides of the line no crater was visible so we obtained the aerial cover *(left)* taken in June 1946 and minutely examined the land on either side of the track looking for evidence of a filled-in crater.

Although six years had passed since No. 541 Squadron took the aerial photo, some trace of the crater ought to show up but there is nothing conclusive. We even had this photo published in the local newspaper but no one came forward, yet it was reported that the explosion blew in the windows of the nearby Great Hyde Hall.

visible once more although most of it was still buried.

During the pumping, I had occasion to run into the village to use the phone at the local pub. Just as I got there they were preparing tea and, as my tongue was literally hanging out, I very nicely asked if they could spare me a cup. Although they knew the job I was on, as they had been warned about the explosion anticipated, I was flatly refused on the grounds that they were rationed, and they just wouldn't budge. My retaliation was very simple: I suddenly thought it desirable to close the pub until the job was finished owing to the danger from blast with people standing outside drinking beer on a Saturday morning. The landlord was pretty livid and said I couldn't do it, but a police inspector who was there assured him that I could, and what is more stayed there himself to see the order obeyed, which I think caused him some amusement. As I forgot to give permission to re-open before leaving, it is probably closed to this day for all I know!

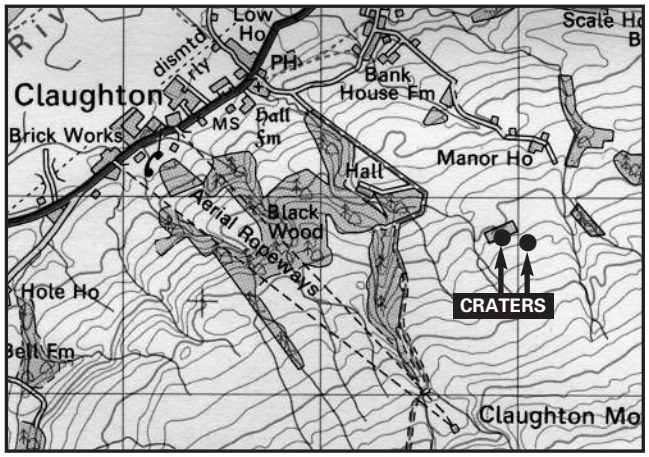
Returning to the mine, I was now at the stage when familiarity breeds contempt as I was getting thoroughly fed-up with the sight of it. Wallowing in the mud I put a small charge alongside it with a five-minute delay and retired about 400 yards to await the big bang. I hoped! Four and a half minutes passed when to my horror I saw two men approaching the mine which of course they could not see. They had apparently walked along the railway line as a short cut and had not been stopped. We all shouted like the devil and I ran towards them but the mine was due to go up any second and they were about 50 yards from it. The anti-climax came when after five minutes, still no explosion — the fuse had failed — one of the most fortunate accidents I have ever known. What with all the running and the excitement I was pretty well worked up by now and I don't think that in my whole life I have used so many different expressions of distaste in one speech as I did to those two men. They were very humble about it all and seemed rather anxious to get away, but whether this was due to my language or the presence of the mine, I don't know.

Well after this little diversion, the mine, with which we had become sufficiently intimate to call Albert, was still there, so once more a charge was laid with a little more care this time. Once more however I was to have a few anxious moments as about a minute before it was due to detonate a couple of inquisitive Lysanders flew right over it to see what the fun was about. Had they been a few seconds later, they would certainly have known, but as it was they had passed over when the explosion actually occurred. There wasn't much mistake about it this time — the explosion was terrific and the stuff that went up seemed to take about five minutes to come down again. Everyone ran down to inspect the crater which really was a beauty, fully 80 feet across.

A few artistically posed photographs of the troops standing in the crater, of which they seemed inordinately proud, packing up of tools, farewells to the REs who were a very nice crowd, and once more on the way back to Admiralty which we reached just at dusk.

You don't get much credit for a countermining job, but personally I think it's as tiring and dangerous as rendering safe. One nearly always has to hang about the mine for a longer time, and there is always a chance that local vibration or something will start

However, the pub that Lieutenant Woolley closed down is easily identifiable as it has to be the Railway Tavern (circled on the aerial shot), which still stands, although modernised, just beside the level crossing. In 1940 the landlord refused him a cup of tea; to us in 2004, the attractive barmaid was more accomodating!



Mrs Mary Barton — then Mary Morse living with her parents Esmond and Dora at Claughton Hall at Hornby in Lancashire — remembers the circumstances surrounding Lieutenant Woolley's next job: 'On October 29, 1940, a Tuesday, Dora and I were alone in the house. I remember that night that a thick fog was covering the whole valley. We were blacked out, and we heard an aircraft flying overhead. It seemed to be very high and we knew it was a German by the different noise their engines made. Next minute there was a huge bang. We couldn't see anything from the windows, and although the house shook, there seemed to be no damage so we went to bed. Early next morning I went into the dining room, and I saw that the windows were smashed and the floor covered in glass. On looking out I saw that all the field walls were down in the direction of Grey Wood, and on going outside, the ground was littered with pieces of twisted metal and dark green material. On walking up towards Grey Wood, I saw a large crater at the bottom end of Grey Wood on Manor House Farm land, and half a dozen paces away was another bomb. It looked like a long tube, about 18 inches in diameter and eight foot long.'

the clock, and if it is buried you don't hear it which may prove to be embarrassing.

HORNBY, LANCASHIRE

Reporting to the Admiralty found me once more temporarily out of work as there were no jobs on hand so we were put on four hours' notice. Some of the older hands were packed off and new men came in. This left only four of us with any experience and we were now regarded as 'experts'. They were all damn fine chaps, and with the exception of two, were all RNVR subs like myself, these other two being RNR.

The keenness for doing jobs was terrific and most of us hung about Admiralty all day in case anything turned up, much to the annoyance of the two who happened to be on duty, which we each took every four days. I was very sorry for the new men who hadn't had a chance of breaking their duck. The strain of waiting must have been very trying as some of them went three or four weeks before they even saw a mine.

I went about a fortnight myself without a job then a report came in from Guildford and I shot down with a chap named Jenner to initiate him to the ceremonial rites. Jenner and I were to strike up a firm friendship as we were both very interested in racing. We were very disappointed when the 'mine' proved to be an unburnt parachute flare. The local police had evacuated almost an entire village because of this. As a matter of fact we only assumed it was a flare as neither of us had ever seen one, but it had a fuse in and we took that out and cut off the bit of the case with a swastika on it as a souvenir and also the shackles off the parachute which Captain Currey acquired for his yacht. Much to our annoyance, someone had already swiped the parachute.

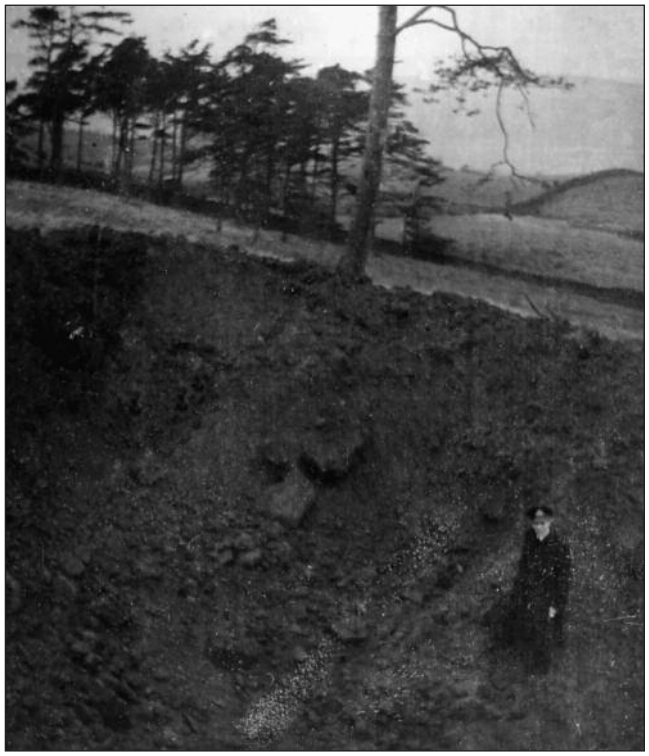
More days went by with no work, and I made such a nuisance of myself that I was promised the next job. This turned up a few days later but it was away up in Lancashire and the report didn't come in until evening so we made a very early start next morning. I had another 'learner' with me this time, and a strange driver who frightened me somewhat, with the consequence that I drove most of the way myself. It was a long journey to do in a hurry in a Ford 10 with four people up — about 380 miles — but we got to Hornby in ten hours which was pretty good going. The weather was foul and going through Manchester I skidded into the corporation sewage cart and bowled it over with rather odiferous results but no serious damage. My rating professed to know a short cut through the city and very strangely after about an hour of tramlines, we found ourselves passing the said rating's home, causing us to lose another 15 minutes while he paid a call to his girlfriend. This was not really appreciated until the return trip when I found my own way back through Manchester in a quarter of the time.

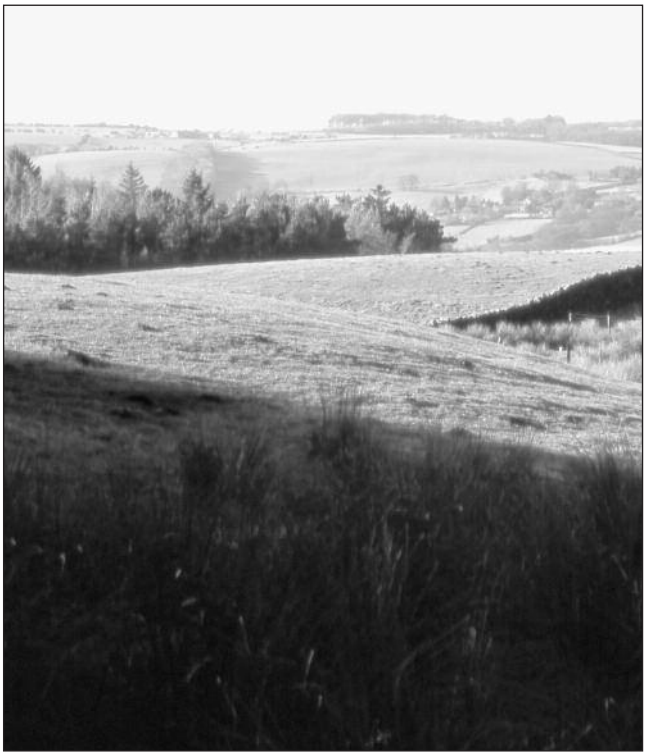
Well we got to Hornby just as daylight was failing but as I was particularly anxious to see the mine that night we dragged a rather reluctant policeman out for a guide and walked about two miles across the moors. It was in very open fell land and wouldn't have done any damage had it detonated, but the awkward thing was that it was lying on the fuze and to move it with safety meant acquiring a very long rope and a gang of men to carry it all that distance. And in any case we had to dispose of the body afterwards.

By now it was almost dark so we found our way back to a hotel and discussed matters over an excellent meal which was more enjoyable as we were in a pretty safe area for a change, without the usual accompaniment of gun-fire. It was finally decided, but rather grudgingly, that counter-mining was the obvious solution, so Layte and I spent the rest of the evening on the phone trying to get hold of some explosive, which proved rather difficult, but retired later with a promise of some from a local Army unit.

The next morning off we went to this unit but we found that although they had a small store of explosives, these had been left by a previous company and no one knew anything at all about them. Nor did Layte or I at that time, but one of the soldiers had a Boy Scout

Mrs Barton: 'I am standing holding our dog in the first picture, and next to the "Danger" notice. In actual fact this only encouraged more sightseers to visit Hornby!'





'On returning, we rang the police, who cautioned about going near the bomb. They then caused considerable panic by saying that we should not collect any pieces as they may be contaminated with Anthrax and that we should burn all the clothing we had on when we approached the bombs. However, it was soon established that they were sea mines, and would not be contaminated! So the police and the Home Guard came up to guard it, and when they were not available I spent some time guarding it as well. Police Constable Bell from Wray, who seemed to know about these things, said that it would only blow up if it started to tick. And whilst I was there a group of six men — I do not know who they were — came up and sat on it whilst their photograph was being taken! Anyway, when the Naval squad arrived we were instructed to stay well away whilst they dealt with it. And at the same time, a chauffeur-driven car came along with a man who turned out to be the manager of Lansil's silk works in Lancaster. He drove right across the fields without asking any permission and fixed the parachute to his tow-bar and dragged it back to the road. He was very rude and cross when challenged, saying that he wanted the parachute for experimental purposes. However, the naval officer came across, and when Dora said that we wanted the parachute, the officer asked whose land it was. When he realised it was ours, he said the parachute was ours, and that settled the matter.' *Left:* **'When they blew up the second bomb, it did more damage, but made a smaller crater — basically all the windows facing Grey Wood were broken.'** *Right:* **'At that time the wood was very sparse and the craters could still be seen up to the 1970s but since then the wood has been replanted. My son took this picture of the area as it is today.'**

NAZI PARACHUTE TURNED TO GOOD USE

One of the Nazi parachutes has been converted into a weapon against the Germans. Recently more than 500 people paid 6d. each to see the parachute on view at Claughton Hall, Hornby, home of Mrs. Esmond Morse, and the proceeds will go to Lancaster's War Weapons Week effort to equip H.M.S. Lancaster. So great has been the interest shown in this parachute, made of green silk and having 28 silk ropes, that Mrs. Morse is arranging for another exhibition at Claughton Hall on Saturday and on Sunday from 2 to 5 p.m., and again the Nazi handiwork will help to forge a link in the Lancaster, which will ultimately bring down the enemy.

'The parachute was enormous', remembers Mrs Barton, 'and, with the help of John Broomfield and a wheelbarrow, we got it to the squash court where it hung for a few days. People from the valley came and viewed it for a 6d fee, the money going to HMS *Lancaster*, with many donating more. I think we would have liked to keep it, to make clothing and things — it was a lovely dark green silk — but the police said that it would have to go to the Admiralty, and so it was taken away by Sergeant Stackhouse of Lancaster Police Station and we never saw it again.'

diary from which we picked up a bit of knowledge, complementing this by opening up numerous boxes and finding bits which fitted into each other. It seemed to work, however, as after fitting up and pushing it down next to the mine, we produced an almighty explosion which was made to sound even louder as it rolled away over the hills. We were lucky really as although we were about 400 yards away, lumps of earth and stones came down all round us as I had not allowed for the wind. I saw what was going to happen and yelled for everyone to go flat, but I could have saved my breath as everyone was flat, having seen it too. Fortunately no one was injured.

I had removed the parachute before blowing the mine up and presented this to the owner of the land who I understand made quite a lot of money by exhibiting it to the benefit of war savings or something. Further enterprise was shown to the same benefit by charging people to come and see the crater which was of very satisfactory dimensions.

We got away from Hornby soon after noon and decided we would try and make my home in Leicestershire before dark which we did by travelling in a highly dangerous manner over wet roads and to the severe detriment to nerves of my driver as he was still sitting in the back seat and I was at the wheel. It happened to be my birthday, so Layte and I repaired to the local and celebrated, then returned to Admiralty at a more leisurely gait the following morning.

After this, another lull with not so much as even a false alarm, and they began talking of sending me back to Harwich. After much

Coventry was targeted on the night of Thursday, November 14/15, 1940 when 449 aircraft are reported to have dropped over 500 tons of bombs in an attack which lasted for nine hours. It was a reprisal for the RAF raid on Munich on the eve of the most important day in the Nazi calendar — the anniversary of the putsch on November 9, 1923 (see *The Third Reich Then and Now*). The Führer always addressed the Party faithful on the previous evening — November 8 — and he must have thought that the RAF were out to get him personally. The centre of Coventry was laid to waste in retaliation . . . but the damage could have been worse had some 25 of the land mines not failed to explode. *Right:* This was a typical scene which greeted Lieutenant Woolley when he began work. This particular Luftmine A fell on allotments behind Three Spires Avenue, Coundon.

With no captions to Woolley's photos, we drew a blank trying to pinpoint the locations ourselves until we had an article published in the *Coventry Evening Telegraph*. This produced a huge amount of interest, this particular shot being identified by James Preece, 67, and Charles Foxon, 69, who both lived in Three Spires. Unfortunately new retirement homes block the correct angle, hence this offset comparison.

pleading in vain, it was arranged that I should retire at the end of the week, but on the Friday prior to this, events moved.

COVENTRY

I happened to be duty officer that morning, and strolled down to Admiralty at 0630 in the pitch dark as usual up into the RMS room, greeting the clerk with the customary 'anything doing?' He merely pointed to a map of the Midlands on the wall with Coventry just plastered with red flags. My reply was a very sarcastic 'Oh yeah' and I sank into a chair and proceeded to read a paper as leg-pulls were not unknown in that room. It was some time before I was made to realise that it was not a leg-pull, then action started. Six of us set off with our ratings and drivers hell for leather for Coventry. As I knew the way out of London, and in fact the whole way, I drove my car and we were the last to leave but the first to arrive at Leamington where we had arranged to meet. Another officer was in charge of the party as a whole, on the executive side, but I was in charge of the working side, so the two of us went into Coventry to have a look-see. It was the most depressing sight I have ever seen. The roads were lined with refugees and there was no water, telephone or anything. The city was still burning and communications were just non-existent except for hand messages.

We were very anxious to see some of the mines as reports had stated they were painted white, which was a new departure, and we don't like new departures on these jobs. After a lot of trouble we found the control centre underground in the middle of the city, working by candle-light with the air still full of dust and fumes, and managed to get the positions of over 20 mines.

Miller, the OC, and I set off to see two of them, and rather to our relief found them to be of standard pattern, so we returned to Leamington and began to plan our campaign. In spite of the enormous strain under which they were working, the police were most helpful and managed to find us a room as a base, and a map, from which we were able to split the operations into areas, and arranged a plan to be put into operation first thing the following morning as it was now nightfall. Billeting was another problem but the ARP proved most helpful in this and found us billets in private houses. Jenner, who was with me again, and I were particularly fortunate in getting put on to an extremely nice family, with whom we spent the following few days.

We got cracking early next morning. I took three learners with me and did one job with each of them before they went off alone and then carried on myself. As it worked out, Jen-

Several residents identified this road as North Street, Stoke, with Mercer Street beyond. Barry Ward, 64, who lived at No. 2, remembered that the mine hit the wall of St Alban's Church (on the left), and Vic Hazel at No. 3 kept part of the nose cone. Eileen Bees, who was eight at the time, recalled spending the night in a shelter 300 yards away while the mine was being defuzed.

Although this mine landed in a back garden of a large city, Sheila Staples phoned in to say she was 90 per cent certain that it was Ro-oak Road, Coundon (not far from the Three Spires mine so possibly they were dropped by the same aircraft). She was seven at the time and remembered that her Dad saw the parachute and thought it was German airmen coming down. It landed in the garden of No. 23. The local air raid warden, Sydney Giles, got everyone into a shelter which stood in the road outside No. 13. When the officer (Woolley) arrived to defuze the mine, he placed his metal wrist watch and cigarette case aside in case it had a magnetic fuze. Seeing this, the warden paled; with metal braces and buttons he had already inspected the mine from the top of a ladder! Wally Cooper, aged 83, was based in the Royal Army Ordnance Corps depot when Sub-Lieutenant Woolley came in for petrol for his car. He remembered him as a 'smashing bloke' and said: 'I can imagine why he's smiling in the photograph in the paper and having a cigarette because he's already removed the primer from the mine — you can see it hanging out.' Then the *Telegraph* received a phone call from a reader in Torquay who believed that the policeman was his late father, Sidney Cooke, who, two years later, was called to the colours. We supplied a good enlargement and the family confirmed it was him. So, on the exact anniversary in 2004, we took the comparison with Sidney's daughter Beryl standing on the same spot with her husband Fred. Unfortunately the rear of the house had been altered just three years previously.

ner and I worked together all the time as many of the mines required two people. Finding the mines was the biggest job as the city was such a shambles and most of the local police had been wiped out and the imported ones knew the district no better than ourselves. My party cleared about ten in the two days and I don't think there was anything particularly interesting about any of them except one that played a tune when we unscrewed the primer, which made us move pretty smartly, but I think it was only air hissing out.

This one incidentally, was only about 15 feet from an unexploded bomb. The REs explained that they were waiting for us to move the mine before dealing with it. Being very polite we said 'after you' but it wouldn't work, and the mine got priority.

One of the chaps had his job go up on him near the Morris works, but fortunately got away with shock only as he managed to make a shelter that was near. As soon as the explosion had taken place he walked back to it with the result that the people who came rushing up got a terrific shock to see a naval officer walking out of the crater from which the dust was still rising, rather like some biblical episode but I can't think just which one. Another rather odd thing on one of my jobs was three neat little holes pierced through the casing, which is only thin aluminium. I found afterwards that this mine had been attacked by a local farmer on landing, he thinking it to be a parachutist and wielding a pitchfork with some effect!

By the evening of the Sunday all the mines had been cleared without casualty, but it was decided to hang on for a day or two in case any more turned up which was quite possible in view of the enormous amount of debris which still had to be cleared. We had dealt with about 25 jobs altogether, some easy, some not so easy, but they all take time if you want to be reasonably safe. One of our most definite safety orders is always to pull things out with a line at least 200 yards long in case of booby traps as things have been known to detonate for unknown reasons when the works are being removed. This itself always constitutes a damned nuisance as when a fuse is unscrewed, there is a big temptation just to pull it out rather than go to all the effort of tying a piece.

On my return to Admiralty I am told that Harwich is asking for me again, and as I've been on RMS much longer than usual, my return seems unavoidable. This proves to be the case, and the end of November finds me back on my old minesweeping duties; but with the promise that if any jobs crop up in that area, I'll get them, or any more heavy blitzs will bring me back to London.

On January 14, 1941, the Supplement *to the* London Gazette *published the announcement of the award of the George Medal to Sub-Lieutenant E. D. Woolley, RNVR 'for great courage and resource in the removal of a parachute mine from the premises of Gillman & Spencer, Rotherhythe, on 17th October 1940'.*

In April 1941 he was posted to Malta as RMS officer and Minesweeper Maintenance Officer to replace the previous incumbant who had been killed by a booby-trapped mine. There he dealt with one of the abandoned

It was sad that Beryl never knew her father as she was only five months old when he was killed in Germany. The war had but one month to run when he was run over by a British tank while serving with the Corps of Military Police. His grave lies in Rheinberg War Cemetery.

The battle at Narwa on the border of Estonia and the Soviet Union has been dubbed 'the battle of the European SS' in that the German force included volunteers from Scandinavia — Norway, Denmark and Sweden — and also from the Netherlands. Estonia also provided men for their SS-Division. The commander of what might be called the 'SS International Brigade' — the III. (Germanische) SS-Panzerkorps — was SS-General Felix Steiner *(left). Right:* **Here young Dutch soldiers of the 4.SS-Panzerbrigade 'Nederland' are greeted by their commander SS-Oberführer Jürgen Wagner.**

THE NARWA BATTLE IN ESTONIA

By Erik Rundkvist and Petter Kjellander

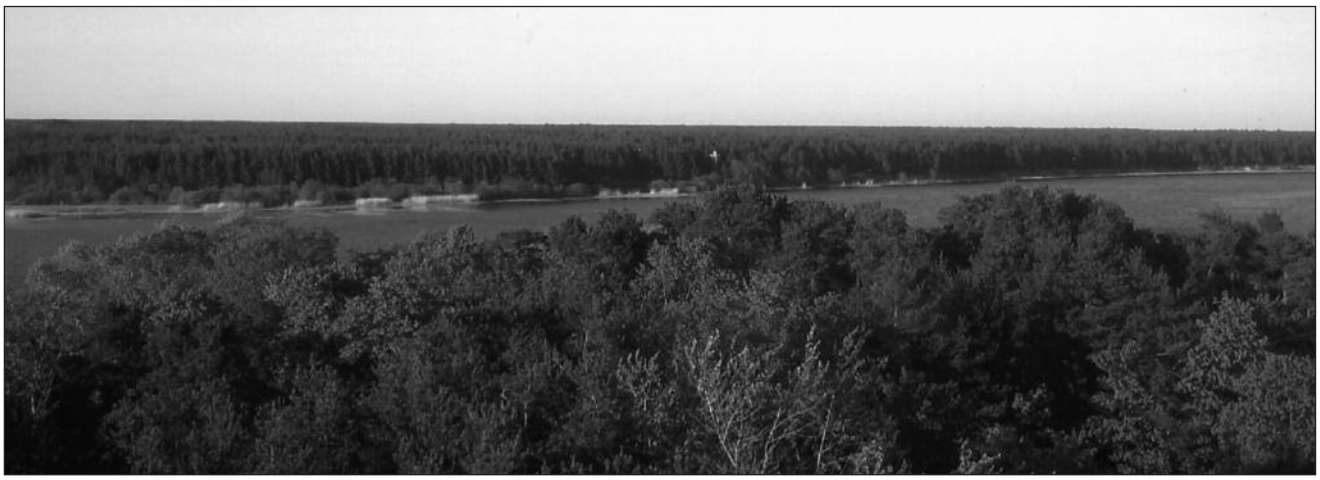
The city of Narwa is located in north-eastern Estonia and used to be an outpost to the Eastern territories in early history and ever since. The city was founded in 1345 by the Danish King and was later occupied by the Knights of the Germanic Order. Their most famous chief, Hermann von Salza (1179-1239), was later to give his name to one of the German units fighting in the same area during World War II: the tank battalion of the 11. SS-Panzergrenadier-Division 'Nordland', the SS-Panzer-Abteilung 'Hermann von Salza'.

Narwa and its surroundings also has a major place in the history of the Great Nordic War, as this was where Swedish King Karl XII gained one of his most famous victories in November 1700, defeating the army of the Russian Czar Peter which was four times stronger than his own. Four years later, the Russians succeeded in capturing the city.

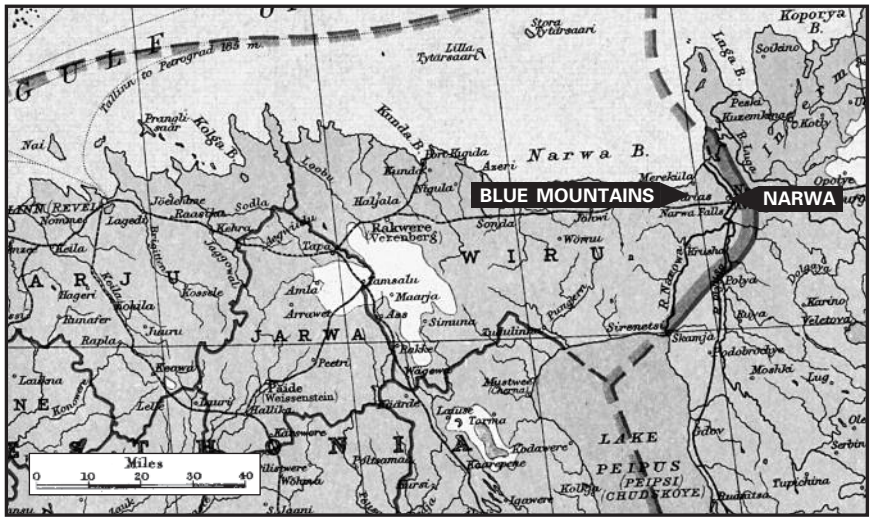
In late January 1944, the German 18. Armee entered Estonia, after retreating from the Leningrad front where they had failed to stop the Russian break-out from the Oranienbaum pocket (see *After the Battle* No. 123). One of the units under the command of the 18. Armee was the multinational III. (Germanische) SS-Panzerkorps, which consisted of the 11. SS-Panzer-Grenadier-Division 'Nordland' and the 4. SS-Panzerbrigade 'Nederland'. The corps was led by one of Germany's remarkable generals, SS-Obergruppenführer Felix Steiner.

From February to April, heavy fighting took place on the eastern side of the River Narwa. The Russians tried to push forward crossing the icy river several times in February to attack two positions at Siivertsi and Vepskula (located a few kilometres north of Narwa on the Estonian side of the river). The Germans counter-attacked and after heavy fighting they succeeded in eliminating the Russian bridgehead. In the bitter fighting, a Norwegian assault group from the Nordland Division and Estonian grenadiers from the newly-formed Estonian 20. SS-Waffen-grenadier-Division distinguished themselves. The commander of the Norwegian assault group, SS-Sturmbannführer Albrecht Krügel, and the Estonian SS-Unterscharführer Harald Nugiseks were awarded the Knight's Cross for their actions.

On the opposite side of the river the Russians tried to eliminate isolated German strongholds. In the north-eastern part of the front, the 4. SS-Panzerbrigade 'Nederland' held its positions, and so did SS-Panzer-grenadier-Regiment 24 'Danmark' of Division 'Nordland' to the south. Both formations succeeded in holding off the Russian attacks, but in the end the Russian pressure was too overwhelming, thus forcing the Germans to retreat towards the western bank of the river.



The wide River Narwa forms the national frontier between the Soviet Union on the far bank and Estonia. This is the view of one of the battelfields today, taken looking from the balcony of Ivan Genadi's flat in Narwa.



The 11. SS-Panzergrenadier-Division 'Nordland' had been formed at the Grafenwöhr training grounds in July 1943, its nucleus being Panzergrenadier-Regiment 'Nordland' of the 5. SS-Division 'Wiking', which consisted of Danes and Norwegians who had volunteered for the Waffen-SS. *Right:* The commander, SS-Gruppenführer Fritz von Scholz, was killed on July 28, 1944.

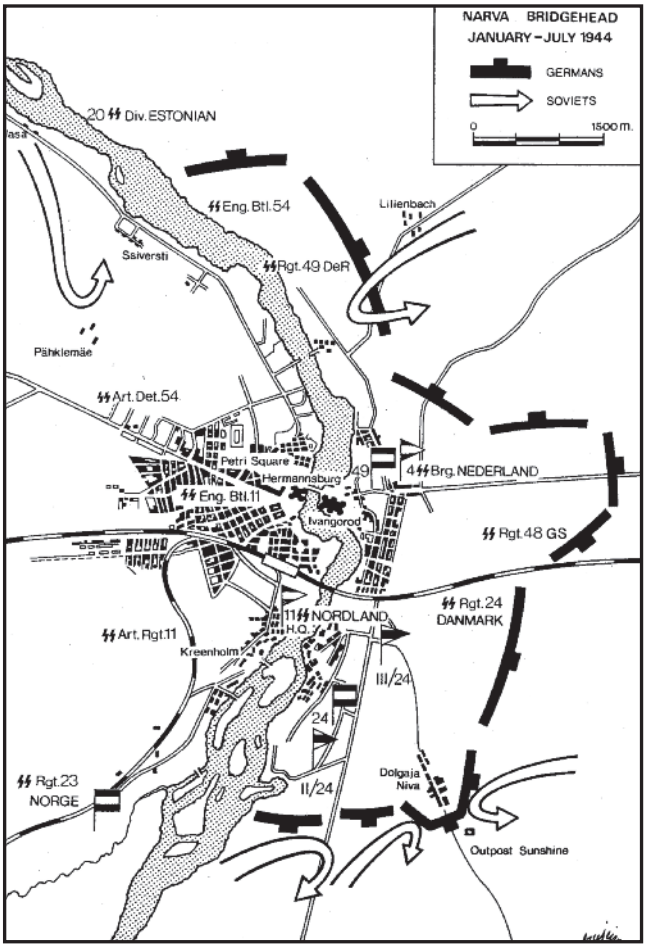
In July 1944 Narwa was evacuated and the German troops retreated west to a new defensive line called the 'Tannenberglinie' which led from the Gulf of Finland in the north southward over a group of hills called the Blue Mountains, and then over the railway line and highway towards Tallinn. The Blue Mountains consisted of three hills known as (from east to west) the Kinderheimhöhe, Grenadierhöhe and Höhe 69.9.

In late July and early August the Russian 2nd Shock Army tried to break through the German positions on these hills with an estimated superiority in men and armour of three to one, but were constantly repulsed by German units in the hard fighting.

One example of the tough resistance shown by the many European volunteers of the Waffen-SS in the fighting in the Blue Mountains is the defensive action by a young Flemish NCO, SS-Unterscharführer Remy Schrijnen, who single-handedly knocked out more than seven Russian tanks, manning a 75mm anti-tank gun on the north side of Kinderheimhöhe while he was wounded and cut off from his unit. For this bravery Schrijnen was awarded the Knight's Cross although he was not the only one who received the Ritterkreuz during the intense battles around the Blue Mountains. Others like Paul-Albert Kausch, Karl-Heinz Ertel, Paul Maitla, Harald Riipalu and Hans Collanni (who took his life instead of becoming a Russian POW) also received the award.

To give a better idea of the ferocity of the battle around Narwa during the period of July 24-29, when the Russians attacked the Blue Mountains they lost around 30,000 dead and missing. An SS general also fell in Narwa. SS-Gruppenführer Fritz von Scholz, the commander of the Division 'Nordland', was a great leader beloved by his men who nicknamed him 'Der Alte' — The Old one! He often came crawling in the trenches bringing cigarettes and schnapps to his men! He was mortally wounded on July 28 and died on his way to hospital.

The Norwegians, beefed up with Norwegians from another volunteer unit, the Freiwilligen-Legion 'Norwegen', formed SS-Panzergrenadier-Regiment 23 'Norge' while the Danes, reinforced by men from the Freikorps 'Danmark' made up Panzergrenadier-Regiment 24 'Danmark'. Added to these was a unit of Dutch volunteers, the Vrijwilligerslegioen Nederland, which was renamed the 4. SS-Panzergrenadier-Brigade 'Nederland' and comprised SS-Regiment 48 'De Ruyter' and SS-Regiment 49 'Generaal Seyffardt'.



Erik Rundkvist and friends travelled from Sweden to explore the Narwa battlefield, largely untouched since the bitter fighting in 1944. *Left:* **This is the swampy terrain infested with mosquitoes so typical of many of the forgotten battlefields of the Eastern Front.** *Right:* **Petter Kjellander and Tom Rogelien with an early find: a Russian shell.**

BACK TO THE BATTLEFIELD

It was in the early summer of 2004 that I, together with two friends, Petter Kjellander and Tom Rogelien, took the ferry from Stockholm to Estonia; almost exactly 60 years after the bitter battle was fought between Soviet and German troops at Narwa.

We reached the capital Tallinn early morning and were met by our Russian friend Ivan Genadi who drove us the 200 kilometres to Narwa which lies in the northern part of the country. We were staying in his brother's flat which, although built in the 1980s, would be condemned by Western standards. However it was perfectly situated as one could see Russia from the balcony.

That evening we consulted maps and made our plans for the following day. We set out at the crack of dawn loaded down with shovels, a metal detector, food and water. Ivan took us first to a place which looked like a swamp — in fact it was a swamp — complete with mud, ditches and mosquitoes! Ivan has been digging in the area since he was a boy and we had a job keeping up with his frenetic pace. We found a lot of ammunition and shrapnel, and in one spot where there had obviously been a pitched battle, there were helmets, grenades, mines, and parts of a German tank. Tom, our tank freak, wanted to take it all back but realised how impossible that would be as we were miles from where the car had been left.

The rusting remains of a panzer and an armoured vehicle . . . and a frustrated Petter who had to leave it all behind!

NOT to be recommended: defuzing a rusty German Teller mine by Ivan for sale to an American collector.

Ivan then calmly opened up one of the German tank mines, saying that he was going to sell it to a local American resident.

On our return we visited the Soviet memorial at Narwa maintained by veterans of the battle. Most of the town was destroyed in 1944 but the twin castles on either bank of the Narwa river have now been beautifully restored.

The Great Patriotic War of 1941-45 resulted in Soviet battle casualties of over 7½ million dead and twice that number wounded. The Russians take great pride in their numerous war memorials typified by the one at Narwa.

Twin castles stand on opposite sides of the river, both now beautifully restored.

A Russian amulette which would have been worn around the neck of the soldier who perhaps suffered a fatal wound from the shell-splinter which has struck the face of Jesus.

The next day Ivan took us to another uncleared battlefield — a dry one this time — although he said there would be more mosquitoes but not nearly as many as in high summer. Shortly after entering the wood I found some Russian helmets with splinter holes and nearby uncovered the bones of a German soldier. It was obvious that he must have been cut in half from the massive shelling. There was no identification disk or personal effects so it looked as if they must have been plundered at the time. Had we found ID tags I would have collected the remains for passing to the war graves people but instead we buried them where we found them. Incidently, we were told that the Russian authorities have no interest in recovering Russian remains.

Despite the formidable mosquitoes we had a very interesting day which ended with a visit to a cemetery where Norwegians, Swedes, and Estonians who served as volunteers in the Waffen-SS were buried. Also at Tallinn we looked at the 'Cemetery of Heroes' which was destroyed by the communists but is now restored with the names listed of the dead who are buried there.

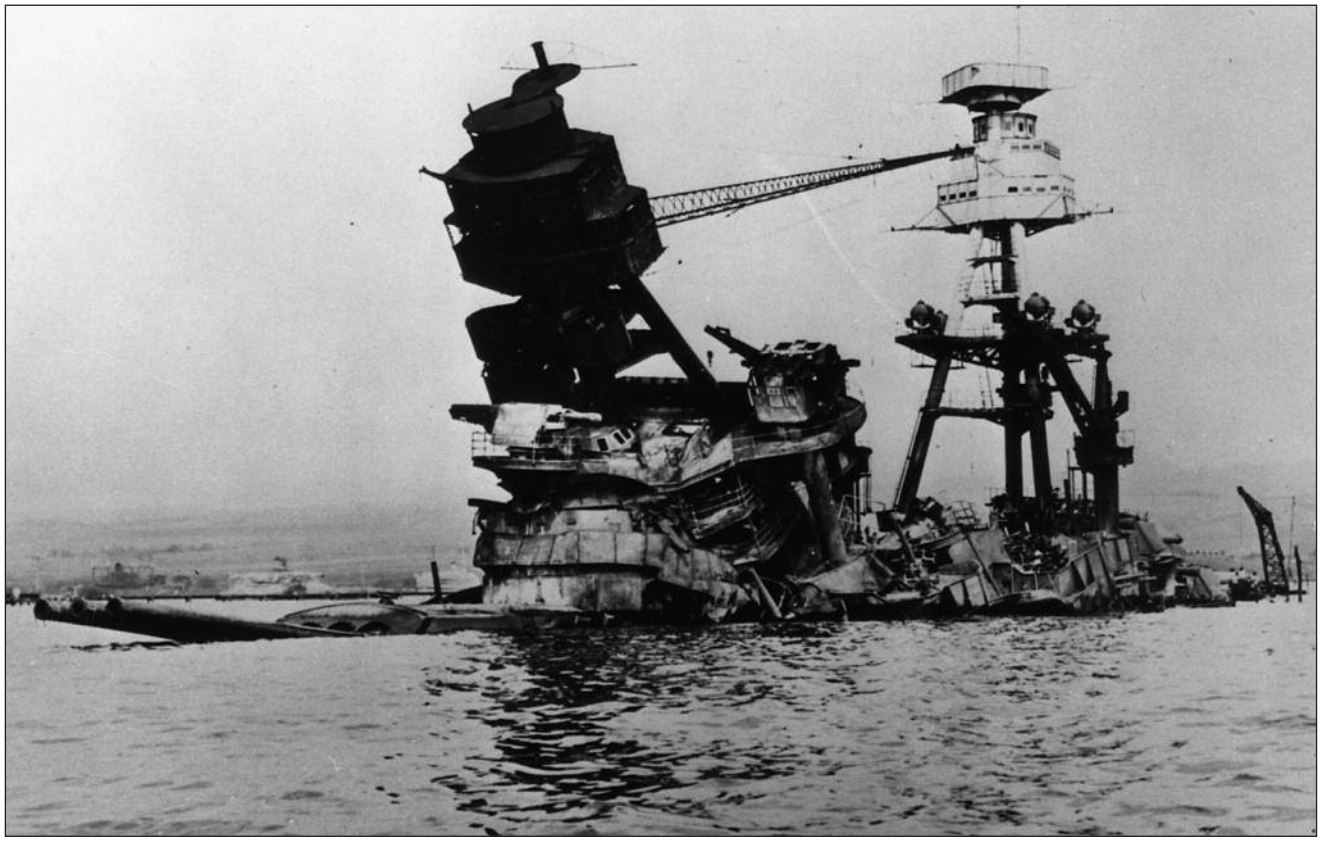
Although identity discs do come to light — that of a Dutch volunteer from SS-Regiment 49 *(above)* **and of a Scandinavian from Regiment 'Nordland'** *(below)* **— in the case of the three soldiers (two Germans and one Russian) found during Erik's trip there was no identification with the remains. All the bodies had been cut in half from the shelling.**

The memorial sited at the centre of the Blue Mountains' battlefield.

A memorial wall contains plaques to those individuals from Norway and Sweden who lost their lives at Narwa and other battles in the same area.

The memorial to the III. Panzerkorps is engraved with the various countries from which the volunteers came: Norway, Denmark, Sweden, Germany, Austria, Estonia, Latvia, the Netherlands and Belgium.

In the topsy-turvy world of eastern Europe, memorials come and go depending on who is in power. This is the 'Graveyard of the Heroes' in Tallinn erected by the Germans but destroyed by the Russians in 1944. They then erected their own Victory Monument which the Estonians tore down after the fall of communism. *Inset:* **The broken remains now lie piled up in a backyard.**



EXPLORING THE WORLD WAR II SECRETS OF HAWAII

By Joe Dovener

The USS *Arizona* is undoubtedly the most revered United States memorial of the Pacific war, if not the whole of World War II. Thousands visit the site where she sank on December 7, 1941, most out of respect, some out of curiosity, but all with a feeling to share its history.

However, a long forgotten part of the *Arizona* has avoided the long tourist lines, in fact very few realise its existence. In 1942, all of the superstructure above the waterline was cut away to decrease the danger and lighten the battleship to ready it for salvage — which of course never happened. Everything that was removed, with the exception of her 14-inch guns, was dumped in an obscure navy location, well away from prying eyes and souvenir hunters. Probably not a bad idea since this material is considered coming from a war memorial and cemetery.

I read an account explaining how they had to cut away the ship's main deck-house in order to install the now-famous USS *Arizona* Memorial. What raised my interest was the disclosure that the 'new' material was added to the 1942 stockpile of *Arizona* wreckage and that this salvage was still stored at Waipio Point at the south tip of Waipio Peninsula in Pearl Harbor.

Waipio Point is an off limits area, closely guarded by both the military and the Ewa police authorities. Visits are extremely difficult and arrangements need to be made long beforehand. Fortunately, a telephone number posted at the intimidating gate eventually produced results. After numerous phone calls, over several days, I was able to contact the Office of the Naval Magazine Pearl Harbor, which has jurisdiction over the area. After explaining my purely historical interest in the area, I was graciously given permission to be escorted by military and civilian police to view and photograph the remains. Unlocking three gates and traversing the undeveloped area where only four-wheel vehicles would stand a chance, I was finally able to come face to face with the stirring remains of the USS *Arizona*.

Sadly, after 63 years, the once proud battleship has given way to rust and wreckage, but the massive amounts of material seem to be determined not to disappear. Surely a tribute to the memory of its crew lost just a short distance away.

On the morning of December 7, 1941, the USS *Arizona* was struck several times by bombs and torpedoes. At 8.10 a.m. while crews were still trying to contain the fires, a bomb penetrated the deck of the battleship and exploded in the magazine. A massive detonation followed which sent her straight to the bottom of her mooring with the loss of over 1,100 of her crew (see *After the Battle* No. 38). Dating from 1913, she was too old and too badly damaged to consider raising her so the guns were salvaged and superstructure reduced until a proper post-war survey could be carried out. In the end it was decided to leave her in situ as a memorial to the 'Date of Infamy'. But what happened to all the metalwork which was removed? Joe Dovener found the answer.

Joe, who hails from Berkeley in California, served for 24 years as a pilot with the US Navy, mainly in the Pacific area which enabled him to explore many of the World War II battlefields. After leaving the service he flew DC-8s and 747s with the Flying Tigers and is currently piloting DC-10s for Federal Express. Joe writes that the opportunity to view and photograph the *Arizona* wreckage hidden away at Waipio point was a surreal experience.

Joe says that 'what was particularly exciting and interesting to me is that I did most of my travels with a copy of *After the Battle* in hand. I have spent time in Normandy to witness the 40th, 50th and 60th annniversaries; explored the beaches at Dunkirk and spent a week "redoing" Operation Market-Garden. What better way to get the real feeling of your stories.'

Six decades ago, our author, Bob Perdue, was an assistant platoon leader in Company F of the 506th Parachute Infantry Regiment, 101st Airborne Division, during Operation 'Market-Garden', the airborne invasion of Holland. On the fifth day of that operation, Friday September 22, Perdue witnessed at close hand the destruction of a German Panther tank on the outskirts of the town of Veghel, a decisive moment in the operation as it marked the beginning of a two-day fight for possession of the town and that stretch of 'Hell's Highway', the road to Arnhem. Six decades later, Perdue returned to Holland to research – and relive – the events that stood etched in his memory. (N. Jongeneel-Ruijs)

BATTLE AT VEGHEL REVISITED

By Robert E. Perdue, Jr.

More than a half-century after I left the Army as a 21-year-old 1st lieutenant, my nephew gave me a copy of Steven Ambrose's book *Citizen Soldier,* which I promptly put on the bookshelf for future reading. But nephew John persisted. He kept asking, 'Have you read it? Did you like it?' Finally, I took it off the shelf and soon saw familiar names of men in my WW II unit, the 101st Airborne Division. I had put the war out of mind and behind me. I had come home and returned to the University of Maryland to major in botany, followed by a PhD from Harvard and a long career as a Research Scientist with the Agricultural Research Service of the US Department of Agriculture.

When I finished the book, I noted in the bibliography a reference to *Rendezvous with Destiny*, the divisional history of the 101st. This prompted an inter-library loan request for that book, and the beginning of a four-year odyssey to retrace my steps and learn more about my WW II experiences.

I was inducted into the Army in early 1943 along with a great group of fellow college students. I had no desire to become an officer, but my friends did, so I also applied for Officer's Candidate School, and in late 1943 was commissioned a 2nd lieutenant in the anti-aircraft artillery. But, before long, the Allies had mastery of the skies in Europe, and I was reassigned to the infantry and sent to Fort Benning, Georgia, for 'Officers Special Basic Training' — two months of 'show and tell' with no 'hands on' experience.

Then I was given the 'cushy' assignment as

Bob Perdue as a 2nd lieutenant in July 1944, shortly after he completed his parachute training at the Jump School at Fort Benning, Georgia, and just prior to being sent overseas.

The three houses visible in the right background of the knocked-out tank still stand on Hezelaarstraat. This street was then part of the Eindhoven to Nijmegen main road, which was the British XXX Corps' single supply route during 'Market-Garden'. The panzer was disabled just after it crossed the road from east to west, which meant it had cut the vital supply artery.

Physical Training Officer for an infantry training battalion at Fort McClellan, Alabama. I never had it so good: a beautiful permanent Army post and lots of pretty southern belles in nearby Anniston. I should have stayed put, but I was bored and volunteered for the paratroopers. I was sent to Jump School at Fort Benning where my training began June 6, 1944 — D-Day in Europe. After ten days leave, I was shipped to England on the *SS America.* (The voyage was a special treat as I had been present at the launching of that great ship, the largest ever constructed in the US, and there was a great officers' mess with steak and breast-of-capon.)

I was assigned to F Company, 2nd Battalion, 506th Parachute Infantry Regiment, where I became Assistant Platoon Leader, 2nd Platoon, F Company, several weeks before the 'Market-Garden' operation in Holland. Interesting! In its infinite wisdom, the Army had assigned a competent, well-trained anti-aircraft artillery officer to the infantry. Had wisdom prevailed I might have joined an airborne AAA unit where I would have been much more effective.

When I received *Rendezvous* I immediately turned to the section on 'Market-Garden' and found a detailed description of how my platoon had knocked out two German 88mm guns that held up our approach to Eindhoven on the second day of the operation, September 18 – an action for which we received a unit citation but of which I had no recollection. (See *Operation 'Market-Garden' Then and Now*, pages 230-235.)

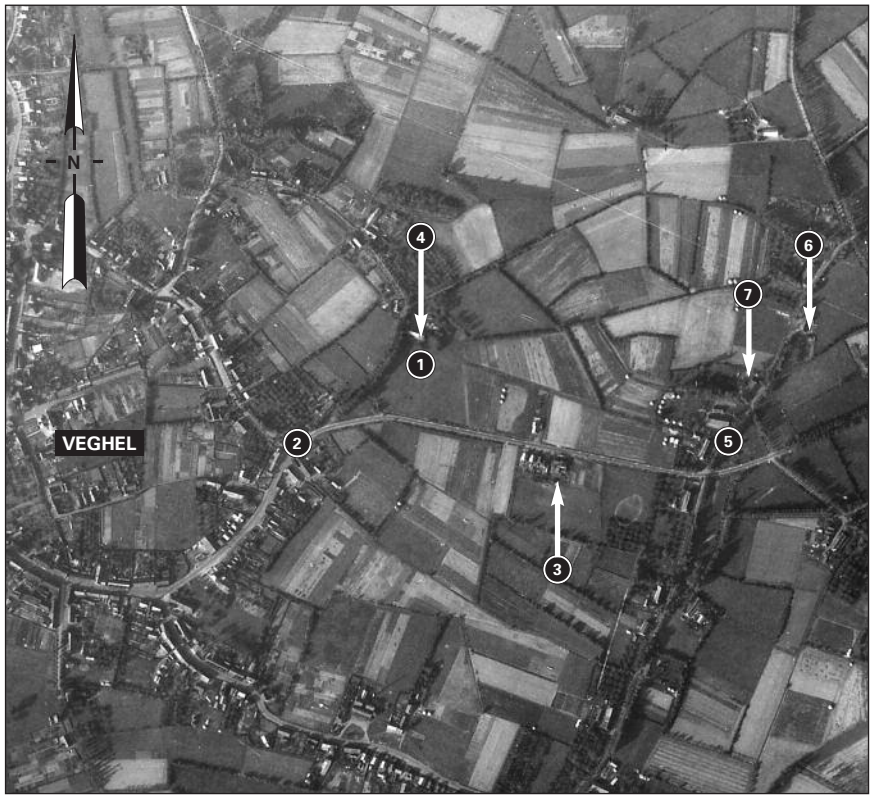
However, I clearly remember much of the battle at Veghel on September 22-23, 1944, when my platoon suffered more casualties than during the Normandy invasion. There was the German tank that hit a British ammunition truck on the 22nd which exploded and blew me uninjured off my feet. I will never forget the lonely patrol that night out to our left with Sergeant Bob Janes to locate the 401st Glider Infantry, supposedly on our flank. We had probably walked only a few hundred yards, but it seemed like miles. As he later said: 'The Krauts were so close we could smell them.' I vividly recall a German bullet through my knee the following morning after which I holed up in a Dutch farmer's barn and later lying on my back in the aid station where I observed, through a blown-out window and adjacent wall, German artillery shells exploding against a church steeple.

Through an Internet query I located Major Richard Winters (whom I remembered as 2nd Battalion Executive Officer), who in turn referred me to Bill Brown in California, 'Fighting Fox Company' historian, and John Taylor who had been in my platoon. Bill Brown has become a 'clearing house' for anyone interested in the history of F Company. I joined that e-mail net and helped expand it.

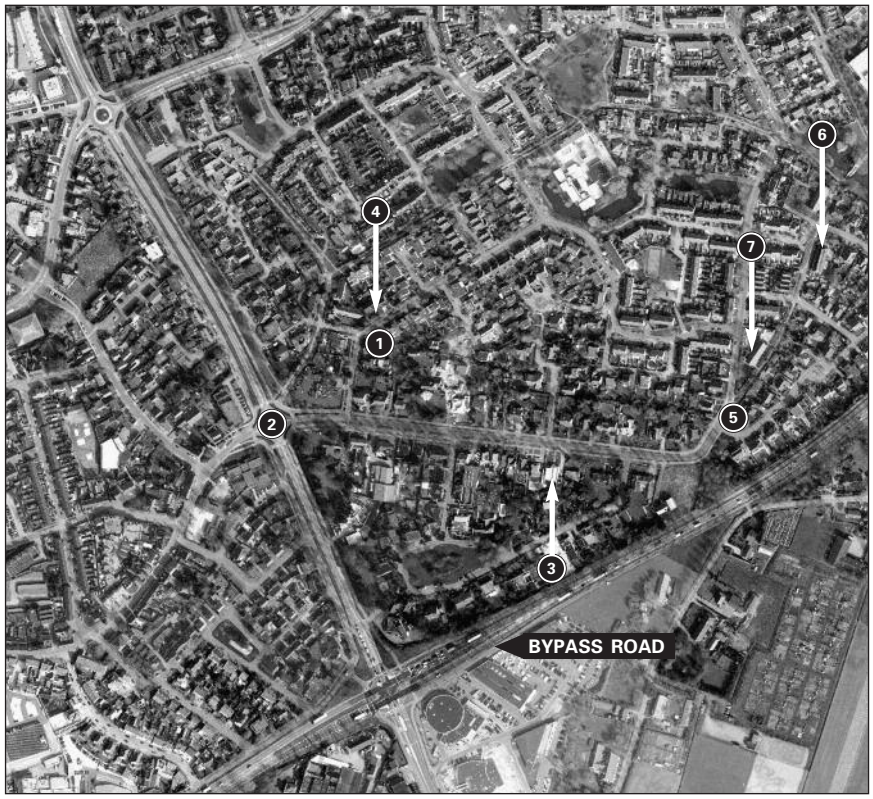
These contacts soon led to others, including Bob Janes, and a rekindling of a long-deceased interest. Soon I was reading books on WW II, spending many days at the National Archives at College Park, Maryland (only about 30 minutes drive from my home), ploughing through 101st records, and beginning a 'memoir' — recording all I could remember or learn about my WW II experiences.

I decided to return to Holland and Germany to retrace my steps and answer: where was I, when and why? One of Bill's e-mail contacts was Cees Jansen of Hemmen, Holland. When my wife and I visited Holland in 2001 we were hosted by the gracious Jansen family and Cees took us to the site of the two 88s in Eindhoven, to Veghel and to Heckhof, a manor house at Stürzelberg near Düsseldorf, Germany, where in April 1945 I was wounded a second time.

Veghel was of special interest. I located



The area where the fight took place as it looked from the air in 1944. [1] Knocked-out panzer. [2] Where six-pounder anti-tank gun was set up. [3] Ruijs' home. [4] Verhoeven farm. [5] Track patrolled by Perdue and Janes, night September 22/23. [6] Farm where Perdue lay wounded on September 23. [7] Farm where Pfc Lev fought back German attack. (Keele University)



The north-eastern part of Veghel has seen major changes since the war. The most important was the construction of a bypass road to the east in the late 1950s, which left Hezelaarstraat, the old main road leading north-east out of Veghel, a quiet back road. Since then, the area around Hezelaarstraat has been developed into a residential area, changing it out of all recognition. However, between the new villas and residences, a few of the original houses and farms survive, giving Perdue just enough clues to reconstruct his wartime experiences. We have again marked the sites pertinent to his story. (Gemeente Veghel)

Left: **The automobile service station and home of the Ruijs family on Hezelaarstraat, which in 1944 formed the last house of Veghel on this road. When the Panther tanks of Panzerbrigade 107 launched their attack on the main road from the east, they approached Hezelaarstraat along a side road to the rear of the houses. The Ruijs family was then taking cover in a makeshift shelter (a buried Model T Ford!) behind their house and narrowly escaped being crushed by the 45-ton panzer. (N. Jongeneel-Ruijs)** *Right:* **The house and garage were pulled down in 1996, and a new villa now occupies the site.**

the road Sergeant Janes and I patrolled out looking for the 401st; the barn to which I retreated after I was wounded during the German attack early morning September 23; the convent of St Lambertus Church and the window through which I had observed shells exploding against the church steeple. I easily identified that window from the new bricks used to repair it.

But I still had questions for which I could not get the answers so I planned to return to Holland the following year.

In the meantime my network of e-mail contacts increased, including a real score — Henk Ruijs, a Dutch Canadian and former resident of Veghel. The fourth of nine children, ten-year-old Henk and his 14-year-old sister, Nelly, had been eyewitnesses to the events of September 22-23, 1944. Their family lived right in the middle of the action. In 1937, his family built a house, store and auto service station at what is now No. 63 Hezelaarstraat, then open country and directly on what, in September 1944, became the 'corridor', 'Hell's Highway'.

It was my good fortune that Henk visited Veghel in 2002 while I was there, and he and Nelly gave me a guided tour and first-hand account of the tank attack on September 22. Henk later sent me a copy of his unpublished memoir from which I have drawn in describing the events.

Henk remembers that his father was very obstinate and uncooperative with the Germans. 'I saw my dad resist the Germans in everything they wanted him to do. He refused to work on German cars that needed repair.' The senior Ruijs was not only an accomplished auto mechanic, but also adept in the construction of radios. He fashioned one on which the family and trusted neighbours could listen to 'Radio Free Orange' broadcasting from London. With this source of news his father realised in September 1944 that something was about to happen and buried a Model T Ford in the ground about ten feet behind the home, a sanctuary covered by about 'half a meter of sand and dirt'.

During the morning of September 22, the 506th Parachute Infantry began moving from Eindhoven north toward Uden. As the regiment passed through Veghel, German shells exploded in the town. The men were ordered off the trucks and F Company under 1st Lieutenant Frank J. McFadden was told to proceed on foot, with 1st Lieutenant Raymond G. Schmidt's 3rd Platoon leading and 1st Lieutenant Russell E. Hall's 2nd Platoon (my platoon) coming up behind.

I had reached the open country just beyond Veghel when the Germans began attacking with artillery and Panther tanks. One tank was coming directly at me; it fired on and destroyed a British ammunition truck to my right. The explosion knocked me uninjured to the ground. As the tank swung its gun in my direction it was hit by an anti-tank gun, also to my right. The German crew came tumbling out of the tank. I was carrying a carbine and fired at the emerging crew. I probably hit neither. It was the only time I can remember firing a weapon in anger.

For reasons I do not understand my initial recollection of this event was that the anti-tank gun was manned by Pfc Donald Harms, who had been a member of my company, and that he was firing a six-pounder (57mm) gun abandoned by British troops. However, the record clearly shows it was a gun of the 81st Airborne Anti-Tank Battalion of the 101st Airborne Division. Their action is one of those few WW II events that stand out in my memory because it saved my life.

Colonel X. B. Cox, former commander of the 81st, described this event in a personal communication:

'I went to the 101st Airborne advanced headquarters in a large two-storey house on the south side of Veghel. Shortly after I entered the room, General Anthony McAuliffe received a message advising that the road north of the town had been cut by German troops and one or more tanks. He turned to me and said, "Cox, see what you can do about the situation".

'As I walked to the street British truck traffic was stopped bumper to bumper. One of my Jeeps with a British six-pounder in tow was weaving its way around the trucks. Corporal William Boyer was driving and, with him, were Pfc Rogie Roberts and Captain Adolph G. Gueymard, Battery B Commanding Officer. I climbed into the Jeep and told the driver to make his way on.

'As we were passing the trucks in the centre of the town a lieutenant was standing in a doorway and asked if he could help. He joined us.

'As we reached the last row of buildings we could hear a tank which seemed to be coming toward us. We unhitched the gun and spread the tails on the tarmac. The tank was about 100 to 200 yards away coming toward us. Just ahead the road divided with one branch to our left [a tree-lined lane to a farmhouse] and one to our right [the 'corridor', 'Hell's Highway', the road to Uden]. The tank, coming along the road to the right, turned to its right into an open field. As it was broadside to us, Pfc Roberts fired and hit the tank near the tracks. The tank burst into flames and several of the crew came out and were probably killed by rifle fire from troops located on our left, likely troops of the 327th/401st Glider Infantry.' [The 327th/401st may have been there; at least two platoons of F Company, 506th Parachute Infantry, were certainly present.]

'The gun was set up on the pavement and the trails were not dug in or weighted down, so the gun's recoil caused it to bounce quite high. When this happened Pfc Roberts' knee was badly injured. Captain Gueymard, who had been sighting the gun, moved over into Roberts' position and fired two more rounds, both hitting the tank. The lieutenant, whom I knew to be a glider pilot, and I were handing down ammo from the Jeep.'

The first account I read of this event was a claim that the tank was knocked out by one or more 37mm anti-tank guns. My spontaneous reaction was: 'No way. I was there and it was a 57mm gun fired by Harms.' A half century after the events of World War II

A veteran returns. Bob Perdue pointing out the groove in the brick wall left by the Panther as it passed between the two houses — today Nos. 65 and 67 — adjoining the Ruijs home.

Ever since the war, Bob Perdue was convinced that the anti-tank gun that he saw knocking out the Panther had been manned by Pfc Donald Harms, whom he knew from his company but who was then serving with 2nd Battalion's HQ Company. However, during his research, Perdue discovered that the gun credited with the kill had actually been crewed by others. The mystery is enhanced by the fact that Harms, who was killed the following day, received a posthumous Silver Star for an identical action. (L. Harms)

Another picture of the disabled Panther. The view is looking back towards Veghel. The six-pounder gun of the 81st Airborne Anti-Tank Battalion that knocked out the tank was set up near the lorries seen in the left background, which is where the main road though Veghel emerges into open country. The line of trees marks the track running from there to the Verhoeven farm, which is just off the picture to the right.

most has long since been forgotten but not this. I remember it vividly. My recollection is that the tank was swinging its gun in my direction when it was hit. One is not likely to forget an action that saves one's life and I did remember Donald Harms, if not the face, certainly the name as he had been in my company.

Harms, who perished from his wounds the following day (September 23) was awarded the Silver Star. According to General Order 47 of the 101st, dated December 4, 1944:

'Pfc Donald G. Harms of 2nd Battalion of the 506th was moving up by truck with his company toward a new position in Uden when it was subjected to an attack by enemy artillery fire. The men were forced to leave the trucks and set out on foot. Enemy infantry and armour suddenly launched an attack on the company. Realising the seriousness of the situation, Harms jumped into an abandoned Jeep and towed an anti-tank gun to a position within range of the enemy. Despite heavy fire from an enemy tank, he moved the gun into position and helped man it. This gun disabled the tank. He then went forward, still under fire and evacuated two wounded men. His aggressive actions were of great assistance in breaking up the enemy attack and enabled the company to set up a defence, thereby saving many lives and several trucks in the supply column.'

As I was preparing this account I spoke to Colonel Cox who stated that to his knowledge his guns were the only 57mm (six-pounder) weapons at Veghel at this time. Subsequently, I sent him an aerial photo of the area and asked him to pinpoint the location of his gun. He did so and the location agrees perfectly with that pointed out to me by my two witnesses.

The true role of Harms remains a mystery to me. I 'witnessed' the event and he was awarded the Silver Star for his heroism. Did I see him so close to the gun I assumed he was part of the crew? Did another person also see him there and reach the same conclusion and erroneously include this event in the recommendation for his posthumous award? Or did the two of us see a member of the crew who resembled Harms?

I recently spoke to all former members of F Company I could reach by telephone. Some remember Harms; one was with him when he died. No one has any recollection of his role in knocking out a German tank.

Another unit, the anti-tank platoon of the

Another picture taken some time after the battle. Everything useful has been removed from the tank and someone has cut off the barrel. Just visible on the right is a corner of the Verhoeven farm, which partly burned down during the battle. (N. Jongeneel-Ruijs)

Perdue's wife Georgia standing at the spot where the Panther was halted. The house behind her is the rebuilt farmhouse.

Nelly Jongeneel-Ruijs and her brother Henk Ruijs photographed by Perdue at the spot from where the anti-tank gun manned by Lieutenant Colonel Cox and his ad hoc crew disabled the Panther. The gun's line of fire was just to the right of the cycle path seen behind them. The Verhoeven farm is about 70 yards away, hidden by the bushes on the right. The cycle path, today named Lindelaan, follows the trace of the old tree-lined track.

1st Battalion, 401st Glider Infantry, armed with 37mm guns, claims destruction of a German tank just north-east of Veghel on September 22. I do not question the action of this unit but the evidence strongly indicates it was the gun of the 81st that killed the tank.

I personally witnessed the action of the 81st and it is well documented. Not only are there the accounts of the event in *Rendezvous with Destiny* and in George Koskimaki's book *Hell's Highway* but also the story of Thomas J. Berry, a glider pilot, the 'lieutenant' who stepped forward from the doorway to assist the Cox unit. Berry was a Flight Officer in the 91st Squadron of the 439th Troop Carrier Group. He had landed a glider with a Jeep and several troopers of the 82nd Airborne Division west of Groesbeek. He and several other glider pilots were making their way back to Belgium and arrived in Veghel as the battle began. He stepped from that doorway to assist in spreading the trails of the gun, assisted with bringing ammunition from the Jeep and then moved on his way anonymously. He remained unknown until 1982 and his action was recognised years later in 1996 by award of the Silver Star.

I have exhaustively searched all records of the events of September 22 and other German tanks were indeed knocked out near Veghel, but only one in the area I witnessed.

Henk and Nelly Ruijs remember the events of that day very well. Henk recalls: 'When the Germans attacked on September 22, their tanks and about 200 troops rolled into town again and once more the grenades and bullets were flying. We took shelter in the old Model T Ford . . . where the van Iperen family joined us for a few hours. How 16 of us managed in this nerve-wracking little compartment is still a mystery to me.'

The van Iperen and Ruijs families had been standing on the main road to Nijmegen watching Allied vehicles and soldiers pass by when the battle began, first German artillery and then tanks. The van Iperens lived on the road to Erp. 'The Americans used their windmill as an observation post and from this saw the German tanks approaching without infantry', writes Ruijs.

The German attack came from near Erp, south-east of Veghel. They cut the corridor north-east of the town, then headed down the corridor toward Veghel. The lead Panther tank passed the Ruijs' home, turned left off the road and rumbled between two houses spaced so closely together that it left a gouge in the brick wall of one which is still evident today. The tank then turned left toward the back yard of the Ruijs' property directly toward the family's sanctuary. Nelly, the only one who spoke a little English, recalls: 'I looked out and saw the tank coming. I pulled a white handkerchief out of my pocket and waved it. The tank went around us and we were saved.'

As it circled the Ruijs' property it ran over a guy wire supporting a windmill with an electric generator at one corner of the home bringing the generator to the ground. The tank 'fired several shells at point-blank range through the living-room windows to flush out any Allied soldiers.' Then it turned toward Veghel on Hezelaarstraat (the 'Corridor'). Subsequently, it veered off Hezelaar and went over an open field. It was hit by the gun fired by the 81st Battalion team as it reached a point 180 meters from the Ruijs' house, near a farmhouse then occupied by the Verhoeven family. Henk and Nelly did not see the tank as it moved through the neighbourhood, but later determined its path from its tracks.

After the tank fight, the Ruijs' garage was taken into use by the Allies as a first-aid post. Nelly served as an interpreter. According to Henk:

'During the night in the shelter we occasionally peeked out and saw many fires all around us. Trucks, travelling the 'Corridor' with ammunition and fuel, were burning everywhere and blocking the roads. Several farmhouses and haystacks were on fire as well. Our family spent most of the time in our cocoon for several days. Mom made several trips to the house to obtain food. She told us the house was severely damaged and our furniture was ruined again. Later, the Americans ordered us to leave our shelter because they feared there would be another German attack. Before I left I looked through the garage door and saw an Army chaplain [Father Francis Sampson of the 501st Parachute Infantry] comforting several wounded soldiers on stretchers. It was not a pretty sight for a ten-year-old and my parents kept urging me to keep on moving. As we began to walk, the ugly reality of war was very apparent. I saw many dead GIs and many with limbs missing on the side of the road and in foxholes. These soldiers had come to Europe to liberate us and had given their lives to do it. We stayed at our friend's home in Vorstenbosch for two days and one night. On the way home we came on the disabled tank that had wreaked such havoc by firing through our living room window. Our neighbour who was with us and had witnessed it showed us the inside of the tank. The burned corpses of two German soldiers were still behind the controls, their helmets almost covering their entire remains. I heard my neighbour say, "Serves you right, you bastards!" Such was the hatred.'

The night after the tank battle, Sergeant

Post-war, the open ground of 1944 became a densely built-up suburb. (Gemeente Veghel)

The night after the tank action, Perdue and a sergeant from his platoon, Bob Janes *(left)***, went on a patrol to locate the 401st Glider Infantry Regiment, which was somewhere to the left of Company F. (R. Janes)** *Right:* **The track they followed, leading off Hezelaarstraat some 200 yards further up the road, is now a bicycle path named Windelaar.**

Bob Janes and I went out on a patrol to contact the friendly unit on our left flank. That patrol is one of my most vivid memories of the entire war. Bob Janes provided me with his memories of that night:

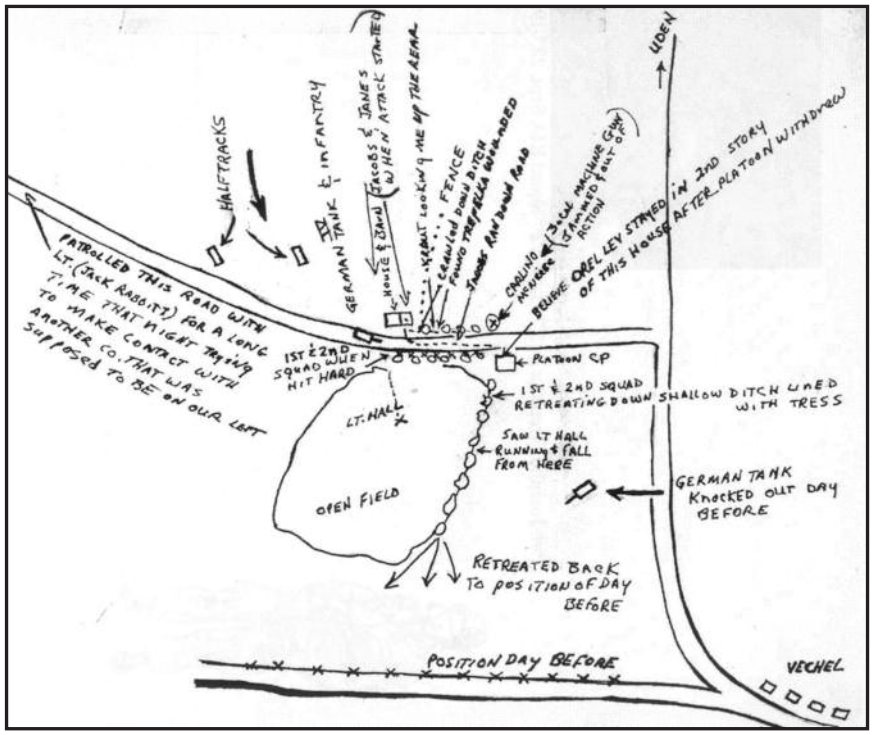
'Carlino, McNeese and I had a machine gun set up just across the road from the Command Post. About midnight, Lieutenant Jack Rabbit (don't remember his name) came by and wanted someone to go on a patrol with him. I went with him and we patrolled on down the road for what seemed like about five miles without making contact with the company that was supposed to be on our left. I remember feeling very tired, lonely, spooked and very scared.'

I was that Lieutenant 'Jack Rabbit' and was just as lonely, spooked and scared, but not all that tired; I was probably keyed up and taut as a guitar string. I do not think we walked anywhere near five miles though it seemed like an eternity. We could hear the ominous sound of German vehicles moving around on our right, obviously adjusting their positions for the attack that would follow the next morning. As we walked down that lonely road a cow began to follow us — clop, clop, clop. She obviously wanted to be milked. While some fresh milk would have been welcome this was not the time for either of us to play farm boy. I was carrying a .45-calibre automatic pistol, took it out of my holster, removed the bullets and used it like a hammer to beat the cow over the head to discourage her company. A logical comment to 'moo moo' at the time would have been, 'Go see the Krauts; they might appreciate fresh milk more than we.' But I didn't say that for I was too frightened to even think about such a logical solution. And even if I had, she undoubtedly spoke only Dutch and would not understand. (More than a half century would pass before Bob Janes and I would meet again at his home in Oregon and he has become a very dear friend. In a recent letter he wrote: 'I think I know where the "mad cow" problem started. It was in Holland in September 1944 when you hit the third member of our patrol, the milk cow, over the head with the butt of your .45 pistol'.)

Why could Bob Janes and I not locate the friendly unit on our flank during that lonely patrol? The unit in question, the 1st Battalion of the 401st, was deployed to the west of the road towards Dinther and somewhat to the north-west of the railroad station with the track to Uden. Dinther is north-west of Veghel; the railroad station was due north of the town centre. There was a gap of at least 200 yards between the left flank of F Company and the right flank of the 401st. Janes and I did not find the unit because it was not on our immediate flank as assumed. Just to the left of our position the road branches, one heading to the north-west and the other almost due north. It is possible that Janes and I took the branch to the north-west while the 1st Battalion, 401st, was positioned along the north branch.

Early next morning, September 23, the Germans attacked down the road Janes and I had patrolled the night before. We were hit by infantry and half-tracks. I was out in the open on our exposed left flank, when I received my first 'million dollar wound' as a German bullet struck my knee. I think I was probably the first of our platoon wounded in that attack. It felt like my knee had been struck by a baseball bat. I looked down and saw holes in my left trouser leg at either side at knee level; then pulled up my pant leg and saw large red spots on either side of my knee where the bullet had entered and exited. I could not have been happier had they been two beautiful baubles on a Christmas tree. My immediate thought was: this is going to get me out of here.

I holed up in a barn attached to a farm-


UDEN
HALFTRACKS
GERMAN TANK & INFANTRY
JACOBS & JANES WHEN ATTACK STARTED
HOUSE & BARN
FENCE
CARLINO & MCNEESE MACHINE GUN
BEHIND ORFELEY STAYED IN 2ND STORY OF THIS HOUSE AFTER PLATOON WITHDREW
PATROLLED THIS ROAD WITH LT (JACK RABBIT) FOR A LONG TIME THAT NIGHT TRYING TO MAKE CONTACT WITH ANOTHER CO. THAT WAS SUPPOSED TO BE ON OUR LEFT
1ST & 2ND SQUAD HIT HARD
PLATOON CP
1ST & 2ND SQUAD RETREATING DOWN SHALLOW DITCH LINED WITH TREES
LT. HALL
SAW LT HALL RUNNING & FALL FROM HERE
OPEN FIELD
GERMAN TANK KNOCKED OUT DAY BEFORE
RETREATED BACK TO POSITION OF DAY BEFORE
POSITION DAY BEFORE
VEGHEL

Right: **The following day, September 23, Company F was hit hard by yet another attack by Panzerbrigade 107. The assault, this time by the brigade's infantry supported by one tank and gun-mounting half-tracks, came down the very same track that Perdue and Janes had used the night before. This sketch drawn by Janes for company historian Bill Brown illustrates the action. Pressed hard, Company F had to evacuate its position and fall back to the line it had occupied the day before, suffering considerable casualties as it retreated across the open fields. (W. Brown)**

Wounded in the knee at the beginning of the attack, Perdue took shelter in a farmhouse on the north side of the track. On his first return visit to Holland in 2001, Bob was amazed to find the original farmhouse still standing among the new houses. Now located at the intersection of Windelaar and Druivelaar, the farm (i.e. the part that was its barn in 1944) is inhabited by the Duffhues family.

house. I make no claim to be a hero but there was one on the second floor of a building down the line that had served as our platoon CP. Pfc Orel H. Lev had remained behind as the platoon retreated and he more-or-less single-handedly repulsed the German attack. As the citation to his Distinguished Service Cross (awarded posthumously in December 1944) reads:

'Pfc Lev distinguished himself by extraordinary heroism in action. On September 23, 1944, his company was in action against the enemy in the vicinity of Veghel, Holland. His platoon was protecting the left flank of the defence when the enemy attacked that flank with three half-tracks, one Mark IV tank and infantry troops. The platoon was forced to withdraw, after suffering heavy casualties, but Pfc Lev elected to remain and cover the withdrawal of the platoon. Although exposed to heavy enemy fire, he fired his rocket launcher at the leading half-track and killed four of the enemy. At this time, the fire from the tank became a very serious threat to the withdrawing platoon, since its fire was being directed by the commander from an open turret. Realising this, Pfc Lev killed the tank commander and halted the advance of the tank. He then returned and gave invaluable information to friendly artillery whose fire disrupted the enemy attack.'

After the fight was over, I was carried on an open stretcher on a Jeep back to the aid station in Veghel. I don't want to even try to describe what I saw there because it could return the nightmares I experienced for the first year after returning home. I remember lying on a stretcher where I could see the street and a church across the street. Artillery was coming in and hitting all around. I remember looking up at the church steeple as it was hit by one round. Soon after I arrived, a medic offered me a shot of morphine. I declined because to me that was 'dope' and I didn't want any part of it. His response was, 'Lieutenant, I am going to give it to you anyway. Turn over.' I did, he shot and I relaxed – completely. After things quieted down I was evacuated to a field hospital in Brussels.

In all, the 2nd Platoon had suffered 16 men killed or wounded. In one 24-hour period the Germans had inflicted as many casualties as in all of Normandy. Among those killed in the German dawn attack was Lieutenant Hall, the Platoon Leader. With him killed and the Assistant Platoon Leader (me) wounded, 2nd Lieutenant Edward G. Thomas took over as Platoon Leader.

I would not rejoin F Company until five months later. After reaching England, I spent two months in a hospital in Cirencester near Oxford, moving to a rehabilitation centre at Bromsgrove, south-west of Birmingham, in November. Then back to the Continent through the replacement depot system. About February 15, 1945, I rejoined F Company, which was then occupying a position along the Moder river in the city of Hagenau in Alsace on the French-German border.

The area of F Company's battle at Veghel was largely open farmland in 1944 but is today a very attractive residential subdivision of the town with tree-lined streets and beautiful gardens. Hezelaarstraat, once the 'Corridor' for wartime traffic moving north, now carries only local traffic; other traffic to the north today moves along a modern bypass a little distance to the east. Only four pre-war homes remain on the Hezelaarstraat section of 'Hell's Highway' including the one gouged by the German tank. Another house has another reminder of the conflict — an artillery shell damaged the roof and the only tiles available for repair were of a different colour, still visible today.

The Ruijs' house and service station, which stood adjacent to the north of these houses, was demolished in 1996. The soil was contaminated with spilled fuel and oil. It was reclaimed and today the site is occupied by a new house.

The Verhoeven farmhouse, near where the Panther tank was stopped, was damaged during the action. It was later renovated and there is now a large modern home on that property. A machine shed near the Verhoeven house but detached from it had completely burned to the ground. Antoon Verhoeven, a descendant of the family, cur-

The day was saved by Pfc Orel Lev *(left)* **of Company F who stayed in the farmhouse that was the 2nd Platoon CP (this was on the same track but a little further back) and from there almost single-handedly fought off the Germans. Lev was killed three weeks later, on October 8, 1944, at Randwijk, when the 101st Airborne was holding the 'Island' (the area between the Waal and Rhine rivers north of Nijmegen). He was awarded a posthumous Distinguished Service Cross for his action at Veghel. (courtesy W. Brown)** *Right:* **Bob Perdue at the Lev house. Its walls still show bullet marks and evidence of a shell hole.**

Found after the attack was over, Perdue was taken to the airborne medical aid post which had been established in the St Lambertus Convent in the centre of Veghel. An unknown photographer took this picture of wounded airborne troopers outside the main building.

rently resides in a home at No. 44 Hezelaarstraat, about a stone's throw from the point where the tank stopped.

The spot where the 81st anti-tank gun was positioned is now a traffic circle joining Hezelaarstraat with Frans Halsstraat. The gun fired to the north-east along what is now a footpath called Lindelaan and the tank stopped just north of where it turns from more-or-less north to north-east.

Running north from today's eastern end of Hezelaarstraat is a street named Dennelaar and, just east of it, a footpath named Windelaar. Now lined by modern houses, this was the route Sergeant Janes and I patrolled out the night of September 22/23.

Only one pre-war building remains on the position occupied by my platoon that night. Then a farmhouse with attached barn, it has been remodelled to form two dwelling units, but it still bears a few battle scars. I met the kind Duffhues family living in the former barn, my sanctuary after I was wounded early morning September 23, 1944, where I holed up until the German attack was blunted by the heroic action of Orel Lev.

Acknowledgements: My thanks to Henk Ruijs, and Nelly Jongeneel-Ruijs for their memories; to Cees Jansen and his family for their wonderful hospitality and time devoted guiding us; and to Bernard Florissen who also guided us and provided useful interpretation of maps and photos. Cees and Bernard are outstanding authorities on 'Market-Garden' events. My thanks also to Bill Brown and Lee Harms for providing photographs. And finally, to Maria Persinos and Glenn Schoen for translating German and Dutch documents respectively and Jim Mandelblatt for his patient guidance.

The convent hospital was heavily shelled during the fighting of September 22-23, the explosions ripping out several of the windows. Bob has vivid memories of looking up to the adjoining St Lambertus Church through a hole in the wall as he lay on the floor of the hospital. Here he points out where the brickwork has been repaired.

SOVIET AIR ATTACKS ON HELSINKI

By Cris Whetton and Tuomo Virkkunen

PRELUDE TO WAR

Most people, if they think of Finland at all, think of a snow-bound country, somewhere on the fringes of civilisation, noted as a neutral location for peace conferences and for the production of mobile telephones and Formula One drivers with unpronounceable names. Few who are not seriously interested in history know of Finland's part in the Second World War — a role which, like the country's history, is complex and ambiguous.

The modern state of Finland was created on December 6, 1917, when the country, formerly the quasi-autonomous Grand Duchy of Finland under Tsarist rule, declared its independence in the aftermath of the Bolshevik revolution. Prior to 1809, Finland had been a province of Sweden. For reasons which are too complex to go into here, many ethnic Finns (as opposed to ethnic Swedes) favoured a Soviet-style government for their new country and a bitter civil war broke out in which the new Russian régime supported the Reds against the Whites, who eventually prevailed. This interference in Finnish affairs led many to a hatred of Soviet Russia, an attitude which coloured later negotiations between the two countries.

One reason for Soviet unwillingness to accept an independent neighbour was Finland's domination, in collaboration with newly independent Estonia, of the Gulf of Finland and thereby the sea approaches to Leningrad (St Petersburg). In addition, Finnish land and air forces were well positioned to strike at Leningrad, should they wish to do so. The German-Soviet Treaty of Non-Aggression of August 23, 1939, assigned Finland to the Soviet sphere of influence — without, of course, consulting the Finns.

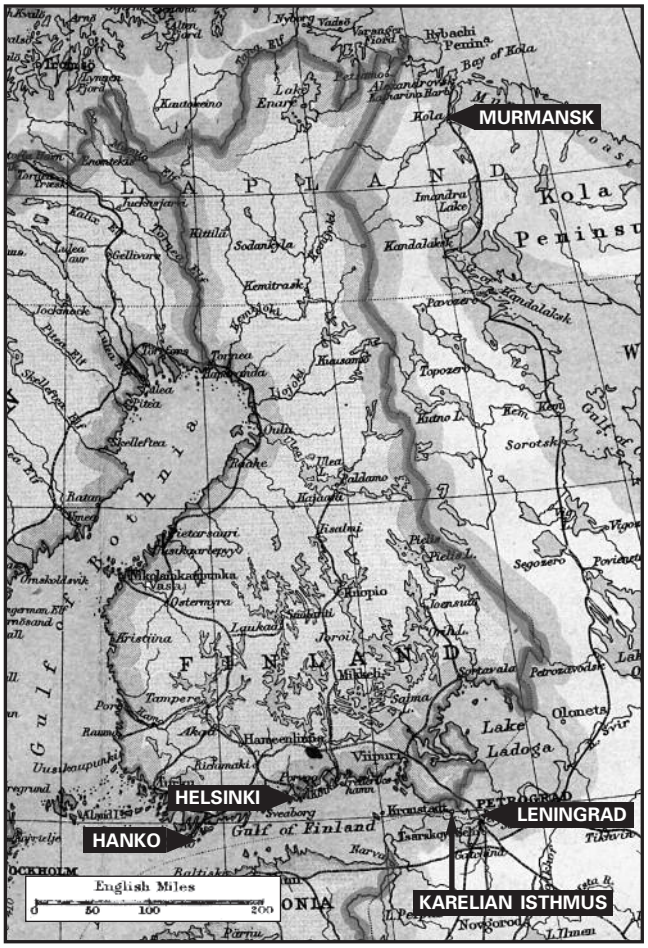
Top: **The park of Kaivopuisto occupies a peninsula south of central Helsinki and in 1944 it was the location of the site of a major battery of 88mm guns protecting the capital of Finland against Soviet air attack.** *Above:* **Today it is again a pleasant park, heavily replanted with trees which obscure most landmarks and made this comparison dfficult. Only by identifying features from the shoreline — especially the stone pier, centre right — and then backtracking through the trees were we able to identify the site. We thought that the small stone marker, visible in front of the tree to the left of centre, might have been a memorial to the site. After spending ten minutes chipping away at the ice, it turned out to commemorate the planting of the trees (which caused us so much trouble) by Rotary International!**

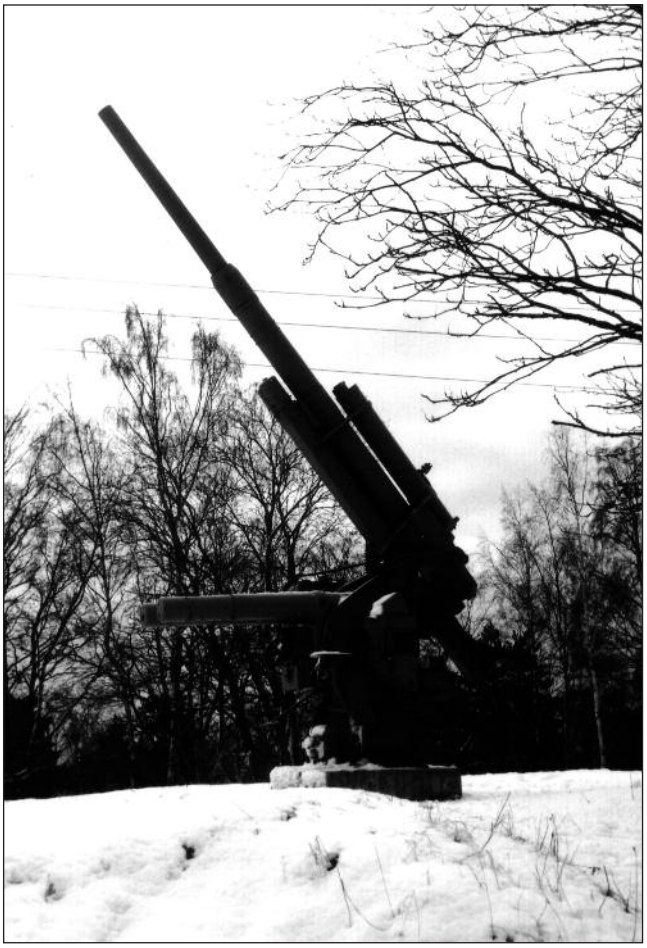
Left: **One of the 88mm gun batteries defending Helsinki was on the island of Lauttasaari, in the bay west of Helsinki. The original picture shows an optical range-finder, appropriately pointing south-west, the direction from which the Soviet bombers usually approached.** *Right:* **The area is now a park and this comparison was also made difficult by the trees but we are reasonably confident that this is the right position — especially as there is an 88mm gun** *(below)* **right behind the photographer's back! It stands as a memorial to the air defences during the Second World War although this hillock has been the site of gun batteries ever since the Crimean War (1853-56) when Finland was still part of Russia.**

On September 27, the Soviet Union began to put pressure on Estonia, claiming that Polish submarines were using the country as a base. This pressure led to the signing of a Pact of Mutual Assistance on September 28-29, giving the Soviets rights to base ships and aircraft in Estonia. The implications for Finland in general and Helsinki in particular were ominous: Russia's new air bases were only a few minutes flying time away, across the Gulf of Finland.

Soviet pressures now switched to Finland. On October 9, Russian aircraft made the first of many intrusions into Finnish airspace and the following day the Finnish government began a general mobilisation. Blackout was introduced for Helsinki and other major cities and a daily air raid practice was introduced between 2000 and 2030 hours (All times are local times. GMT+ 2 hours in winter; GMT + 3 hours in summer.) By October 11, some 100,000 persons had voluntarily left the capital. Subsequently, further mobilisations were ordered, mail and telephone censorship was introduced, and a second phase of 'concentrated practice' was ordered for the air defences. Beginning on October 18, Russian forces moved into their Estonian bases. On November 19, there was a minor panic when residents of Muonio, near the Swedish border in northern Finland, awoke to find a wayward British barrage balloon floating in Kangasjärvi, the local lake. It was the first — though not the last — to find a new home on Finnish soil. On November 22, no doubt acting in concert with Russia, Germany interned 13 Finnish merchant ships, mostly in Kiel.

Between October 12 and November 9, at the insistence of Moscow, three rounds of talks were held between Finns and Soviets. Stalin's demands were simple: move the Finnish border back by 70 kilometres, out of the Karelian Isthmus, away from Leningrad; cede various islands in the Gulf of Finland permanently to Russia; give Russia a 30-year lease on the Finnish port of Hanko, which dominates the entry to both the Gulf of Fin-





Left: **Helsinki Fire Station is one of the tallest buildings in the centre of the city and it was from here that air defence was first organised, later moving to a nearby underground bunker. The original picture, undated but evidently taken in the late autumn of 1939, shows a group of mixed civilian and military spotters. The woman nearest the camera is wearing the arm-band of the VSS [Väestön Suojelu — Civil Defence] which was re-designated IS [Ilma Suojelu — Air Defence] in 1940.** *Right:* **Unfortunately, changes to the roof of the tower prevented us from matching the angle of the wartime shot but the original iron railings remain, though the background skyline has changed considerably and a comparison was only possible with the help of the curator of the Fire Museum. Tuomo Virkkunen stands in for the original group.**

land and the Gulf of Bothnia; and shift the northern border back from Murmansk, incidentally ceding to Russia the valuable Petsamo nickel mines, which were owned by a Canadian company. In exchange, Stalin offered the beautiful, but otherwise useless, Russian Karelia. The Finns refused

There was a substantial body of Finnish communists, refugees from the civil war, in exile in Russia. According to their leader, O. W. Kuusinen, the majority of Finnish citizens were oppressed workers, who would not oppose liberation by the glorious Red Army. Stalin believed him and decided to liberate Finland. A pretext was created by a staged border incident at Mainila, on the Karelian Isthmus, on November 26, 1939, in which Russia claimed that seven Finnish artillery shells had landed on Russian territory, killing four soldiers. Soviet Foreign Minister Vyacheslav Molotov made the inevitable exorbitant demands, the Finns replied with proof that the shots had originated on Russian territory, to which Moscow replied by kidnapping three Finnish border guards near Petsamo, accusing Finland of acting 'out of deference to the foreign imperialists who stir up hatred against the Soviet Union' and breaking off diplomatic relationships on November 29. At 0650 hours on November 30, the Red Army crossed the frontier, while the Soviet air forces raided Helsinki and several other Finnish cities. Finland's President Kyösti Kallio formally declared war later that day. Stalin expected it would take a week or so.

THE WINTER WAR

The period known as the Winter War lasted from November 30, 1939, to March 13, 1940. The general details of the war do not concern this article; suffice it to say that Soviet Russia lost 200,000 dead, to the Finnish 25,000, much equipment and a great deal of prestige. Finland, however, lost one tenth of its territory and had to absorb 400,000 refugees.

Finland was ill prepared for air attacks. There was little heavy anti-aircraft artillery and the system of air raid warning consisted entirely of observers, supplemented by a few equally ineffective acoustic listening devices. At this stage, the air defences were organised from the Helsinki fire station, a beautiful brick building surmounted by a 42-metre tower which provided one of the look-out posts. Another observation post was the 72-metre tower at the Olympia Stadium. The female volunteer observers adapted to conditions on top of the tower as only Finnish women can.

Above: **The tower of the Olympia Stadium at 72 metres is the tallest building in the Helsinki district. Built for the 1940 Olympics, it was not used until 1952. Like the tower of the Fire Station, it was also used as an observation post, manned by civilian women of the VSS. The sub-arctic conditions on top of the tower led to a virtual fashion parade of exotic clothing.** *Right:* **When we arrived to take our comparison shot, we were amazed to find that the plinth which supported the original goniometer is still there but because of the anti-suicide grid which now covers the tower, we were unable to match the angle of the original shot. The author's wife enjoys herself modelling a genuine 1930s fur while a very camera shy Tuomo stands in for Mirjam Heitto, who donated the original photograph to the Finnish Army collection.**

Left: **The first air raid on November 30, 1939. These photos were taken on Lönnrotinkatu (see map pages 44-45) — then and now.**

As far as air attack goes, Russia had prepared better: with Estonian airfields, Soviet bombers had only a short flight across the Gulf of Finland, and no need to cross hostile territory, before dropping the first bombs on Helsinki at 0915 hours on the morning of November 30. There had been no declaration of war, no ultimatum, and the people going about their business, the children on their way to school on a bright, sunny, winter's morning, were completely unprepared. In this first and subsequent raids that day, Soviet aircraft dropped 133 high explosive and 60 incendiary bombs, killing 91 civilians and leaving 36 seriously injured, plus 200 minor casualties. A Finnish anti-aircraft battery on the island of Suomenlinna opened fire and claimed one kill. Recently opened Soviet archives show two losses — both DB-3f.

Although the bus station was hit, most of the bombs fell on an area of shops and apartment blocks south-west of the city centre, bounded by Lönnrotinkatu to the north and Bulevardi to the south. By the standards of 1939 damage to Lönnrotinkatu was extensive. Nor were the emergency services well organised at this time. Surprisingly few fires were started in this first raid, the only two of any significance being at the bus station, and a residential block at the corner of Lönnrotinkatu and Abrahaminkatu. One major casualty was the Helsinki Technical University, which was largely destroyed, though, as will be seen, the university was to have its revenge in 1944. From the air, Lönnrotinkatu, and the several streets parallel to it, run south-west to north-west and for an aircraft approaching from the south-west in daylight form a distinctive 'arrow' pointing towards the prominent cathedral. This, and the almost parallel bombing patterns, suggests that the cathedral may well have been the bombers' aiming point. Some bombs also fell on Malmi (then the site of Helsinki airport) about 12.5 kilometres north-east of the city centre.

The principal places mentioned in the text, roughly in the order of their appearance, are as follows: [1] Helsinki Fire Station, Korkeavuorenkatu. [2] Olympia Stadium. [3] The island of Suomenlinna. [4] Bus Station. [5] Lönnrotinkatu. [6] Bulevardi. [7] Abrahaminkatu. [8] Helsinki Technical University. [9] Töölö Hospital. [10] Cathedral and Helsinki University.

[11] Kuninkaansaari. [12] Töölönlahti — Töölö Lake. [13] Porthaninkatu. [14] Rauhankatu. [15] Pieni Roobertinkatu. [16] Santahamina. [17] Viikki. [18] Munkkivuori. [19] Melkki. [20] Vuosaari. [21] Oikokatu. [22] Mannerheimintie. [23] Lutherinkatu. [24] Kaisaniemi. [25] Lauttasaari. [26] Kaivopuisto. [27] Rastila. [28] Vartiokylä. [29] Kuusisaari.

November 30, 1939. This is the junction of Abrahaminkatu and Lönnrotinkatu.

On December 1 the Soviets mounted further raids on Helsinki and other cities, though with far less effect and two bombers were shot down by Finnish AA guns. Despite this success, a decision was taken on December 2 to evacuate Helsinki. The same day, a small raid smashed the roof of the Luther Church, but otherwise caused little damage. Bad weather then prevented any further Soviet raids until December 19 when widespread bombing took place across Finland, including Helsinki, Turku, Sortavala, Hanko, and southern Finland in general — especially coastal targets and islands. It is estimated that the Soviets mounted over 200 sorties and Finnish fighters were in action from dawn, claiming 14 kills. On December 21, the Soviet bombing campaign escalated, with attacks on Helsinki, Tampere, Hanko, Turku, Rauma, Porvoo, Sortavala, and Viipuri — all of which could be considered legitimate targets — and attacks on country towns such as Riihimäki, Karjaa, Loimaa, Karkku, and Kontiomäki which had no military or industrial significance whatever. In Helsinki, the main Töölö Hospital was hit. The next day, attacks were made on Helsinki, Pori, Tammisaari, and Rauma; there was little damage and no casualties. Finnish defences claimed two kills.

Christmas Day dawned bright and clear, weather conditions which encouraged the Soviets to attack military and civil targets in the Helsinki area, Turku, Tampere, Hanko, Porvoo, Viipuri, and many smaller towns in the surrounding areas. The fine weather encouraged the Soviets to attack from high altitude, leading to a loss of accuracy. Damage was slight and there were few casualties. The weather also favoured the defenders, who were becoming better organised, and Finnish defence forces claimed at total of 23 kills, of which 12 (plus three probables) fell to fighters.

Further widespread raids took place on January 13 and 14, 1940. Between 1230 and 1630 hours Soviet aircraft bombed civilian targets from heights of 3,000 to 3,500 metres, concentrating on Uusikaupunki, Kokemäenjoki, Eura, Tampere, Hanko, Lahti, Hämeenlinna, and the Suomenlahti district around Helsinki. Ten (some sources say 13) people were killed in Hämeenlinna, three in Helsinki (some sources claim six killed and 21 injured), and one in each of Lahti and Hyvinkää; total wounded were put at 'several tens'. Finnish air defences claimed two kills.

For the rest of the Winter War, Soviet air attacks ignored Helsinki and those attacks that were made seemed be aimed at strategic road junctions, though casualties were not light in relation to the sizes of the towns attacked: 32 killed in Kuopio on February 3; 17 killed in Lapeenranta on February 15; and 41 killed when a single bomb hit an air raid shelter in Iisalmi. On March 13, 1940, a peace treaty was signed in Moscow — while the last Russian bombs were falling on the strategically important eastern city of Viipuri. At 1530 hours the Finnish flag was struck from the tower of Viipuri castle and Russian troops moved in. The Winter War was over.

The covered market on the left made this an easy match although its distinctive windows have led this shot to be mis-identified in the past as the 'Swedish Theatre'.

The Technical University on Bulevardi was damaged during the same raid on this first day of the Winter War.

Left: **Following the ending of the Winter War in March 1940, Finnish air defences were steadily improved so that by the end of 1943, when Soviet air raids on the city recommenced, the preparations were ready, with much of the equipment being German. This Würzburg radar is pictured on Lauttasaari as part of 82 Raskas Ilmatorjuntapatteri.** *Right:* **Men of the 108 Raskas Ilmatorjuntapatteri, forming part of Raskas Ilmatorjuntopatteristo 4, manning what is either a Czech 75mm or Russian 76mm gun.**

A BRIEF PEACE

Under the peace treaty, Stalin got what he wanted. The border was moved back, giving bombers based in Leningrad less hostile territory to fly over (or past, if they came down the Gulf of Finland). Russian forces moved into Hanko, where, with monumental incompetence they proceeded to build an airfield on the largest swamp. An uneasy peace reigned, punctuated by occasional incidents, such as the shooting down of a passenger aircraft over the Gulf of Finland. Yet another wayward British barrage balloon, trailing a 1,200m steel cable, snagged the power lines to the island of Kuninkaansaari, about five kilometres south-east of Helsinki. Finnish troops used it for target practice, with predictable results.

Between the end of the Winter War and the beginning of the Continuation War, Finland did not sit idly by. It rebuilt its armed forces, creating a 16-division army, compared to ten in 1939, and reorganised much of its air defences. On December 19, 1940, the ageing President Kallio died and was succeeded by the younger, more hawkish, and pro-German Risto Ryti. Not surprisingly, Finland moved closer to Germany (perhaps significantly, *Mein Kampf* appeared in Finnish translation on March 1, 1941) and fell in with Hitler's plans for Operation 'Barbarossa', the invasion of Russia. Finnish politicians — if not their military leadership — saw this as an opportunity to regain territory lost in 1940 and restore the situation to that of 1939. Such a strategy depended upon a quick victory by the Germans, but that, to the Finnish political leadership, was a foregone conclusion.

Fortunately, Finland had learned some lessons from the Winter War, particularly in the areas of air defence, camouflage, deception, and air raid precautions. Air raid shelters were dug deep into the solid rock (creating a world-class hard-rock tunnelling industry that continues to this day) and a relatively sophisticated air defence system was set up, with some similarities to that of Britain in 1939-40. One important thing the Finnish command did was to set realistic goals for the defence of Helsinki. No one threatened to change their name to Meyer if a single Russian bomb fell on the capital; instead, a Helsinki air defence zone was defined, a circle of ten-kilometre radius centred on Töölönlahti, a lake (actually an inlet of the sea) just north of the main railway station and just east of the main hospital. The objective of the air defences was to minimise the numbers of bombs dropped within this area. The tactics involved well-planned anti-aircraft batteries and, eventually, some deception.

On June 10, 1941, the Finnish supreme commander Marshal Carl Gustav Mannerheim ordered a partial mobilisation, including air defence units in northern Finland. On June 16, Mannerheim ordered extensive air defence exercises to begin two days later. Perhaps in response to these rather provocative moves, Russian naval bombers, operating from the temporarily dry airfield in Hanko, attacked Finnish warships in the Gulf of Bothnia. Mannerheim ordered all air defence forces to readiness. On June 24 the Russians evacuated most of the staff from their embassy in Helsinki. (The last member would not leave until a month later.)

Left: **A key component of a heavy AAA battery was the predictor, an electro-mechanical analog computer which determined the gun aiming on the basis of range and bearing data provided by the radar and optical tracking devices. In this case, the predictor is a German type Lambda, which was associated with a four-metre baseline Zeiss optical range-finder. The unit in question is again 82 Rask lt ptri, based near Viipuri at the time. Note the wide variety of helmets worn by the crew; this was not at all unusual in the Finnish Army and one famous photograph of an artillery crew during the Winter War shows six soldiers wearing five different helmets — the sixth member being bareheaded!** *Right:* **Some of those who served in the air defence of Helsinki were very young, with 15-16 year-olds being used as bicycle messengers. Here two teenagers are fitting shells with a magnesium charge which was used as a 'scarecrow shell' to discourage Soviet flyers by simulating an exploding aircraft.**

In July 1941 Helsinki suffered two minor raids. This is the damage from the July 12 attack in Rauhankatu, the rather unfortunately-named 'Peace Street'!

THE CONTINUATION WAR

On June 25, 1941, the Soviet forces, whose intelligence for once seems to have been good, pre-empted the start of the Continuation War with bombing raids on Helsinki and other cities. Finnish air defences claimed 25 attackers destroyed. Thereafter, air attacks on Helsinki seem to have been desultory. A small raid on July 7 destroyed part of an apartment block on Porthaninkatu, hit another block on Rauhankatu, and blew out most of the windows in the Alexis Kivi primary school. A small raid on July 12 also caused little damage. For the rest of 1941 and most of 1942 Russian air attacks concentrated on military targets, mostly in the east, and the Finnish air defences scored some remarkable successes, notably on August 12 when seven Finnish Brewster Buffaloes shot down nine Russian aircraft in 25 minutes, without loss, in an air raid on the Karelian isthmus. As 1941 drew to a close, the United Kingdom and Canada declared war on Finland on December 6, with the kick-off formally set, in gentlemanly fashion, for 1201 hours GMT on the following day.

In the autumn of 1942, small Soviet attacks on Helsinki began again in earnest. On the night of August 25/26, 50 bombers attacked the capital, in six waves, killing five and wounding ten. Four days later, a 60-bomber raid attacked Helsinki and Porvoo, a port about 45 kilometres east of Helsinki, killing three and wounding 20. On November 11, 1942, a lone Pe-2 dropped two bombs on central Helsinki. One bomb landed on Pieni Roobertinkatu, in the Erottaja district, in front of the Gloria and Tivoli cinemas which held popular daytime shows for children, killing 45-50 and injuring 114-120, mostly children — the largest number of casualties in any raid on Helsinki. The other bomb landed in the courtyard of No. 13 Lönnrotinkatu, doing relatively little damage.

No major raids were mounted against Helsinki until March 30, 1943, when a medium-sized raid was largely deterred by Finnish anti-aircraft fire though a few aircraft got through, killing two and wounding 30. Another lull in the air attacks began, just as Finland began to modernise its air defences using German equipment. Two Freya surveillance radars (Finnish code-name 'Raija') were purchased, with one being installed at the Helsinki airfield of Malmi, the other apparently in Kuninkaansaari south-east of the capital. Six Würzburg tracking radars (Finnish code-name 'Irja') were installed: four in Helsinki and two in Kotka. Each Würzburg was linked to a Delta predictor. Several four-metre baseline Zeiss optical range-finders were acquired, together with their Lambda predictors, and some Askania kinetheodolite equipment to observe the effectiveness of aimed fire. Three batteries of 88mm AA guns were also purchased.

Of all the photographers — mainly anonymous — who photographed the destruction in Helsinki throughout the two wars, it is Kalle Sjöblom's work which mostly appears in history books. He was a professional who became Marshal Mannerheim's personal photographer but a Sjöblom's work is as much posed as composed.

Lacking suitable night-fighters, the Finns did not adopt a version of Germany's 'Kammhuber Line'. Instead, Helsinki was divided into four sectors, each of which had a Würzburg and a Delta predictor directing the main battery.

The south-eastern sector, designated Raskas Ilmatorjuntapatteristo 1 (Heavy Air Defence Battalion 1), with 14 heavy guns in three batteries, had its headquarters on the island of Santahamina and was commanded by Major Pentti Paatero. The three batteries were 'Rata', with six German 88s controlled by Würzburg; 'Itä', with four Czech Skoda 75mm guns; and 'Santa' (Finnish for 'sand' and nothing to do with the jolly, red-suited, white-bearded gentleman who lives in Lapland and whose real name is Joulupukki — roughly translated as 'Christmas goat') also with four Skoda 75mm. Paatero could also call upon the support of two heavy coastal batteries, totalling seven guns, and one light.

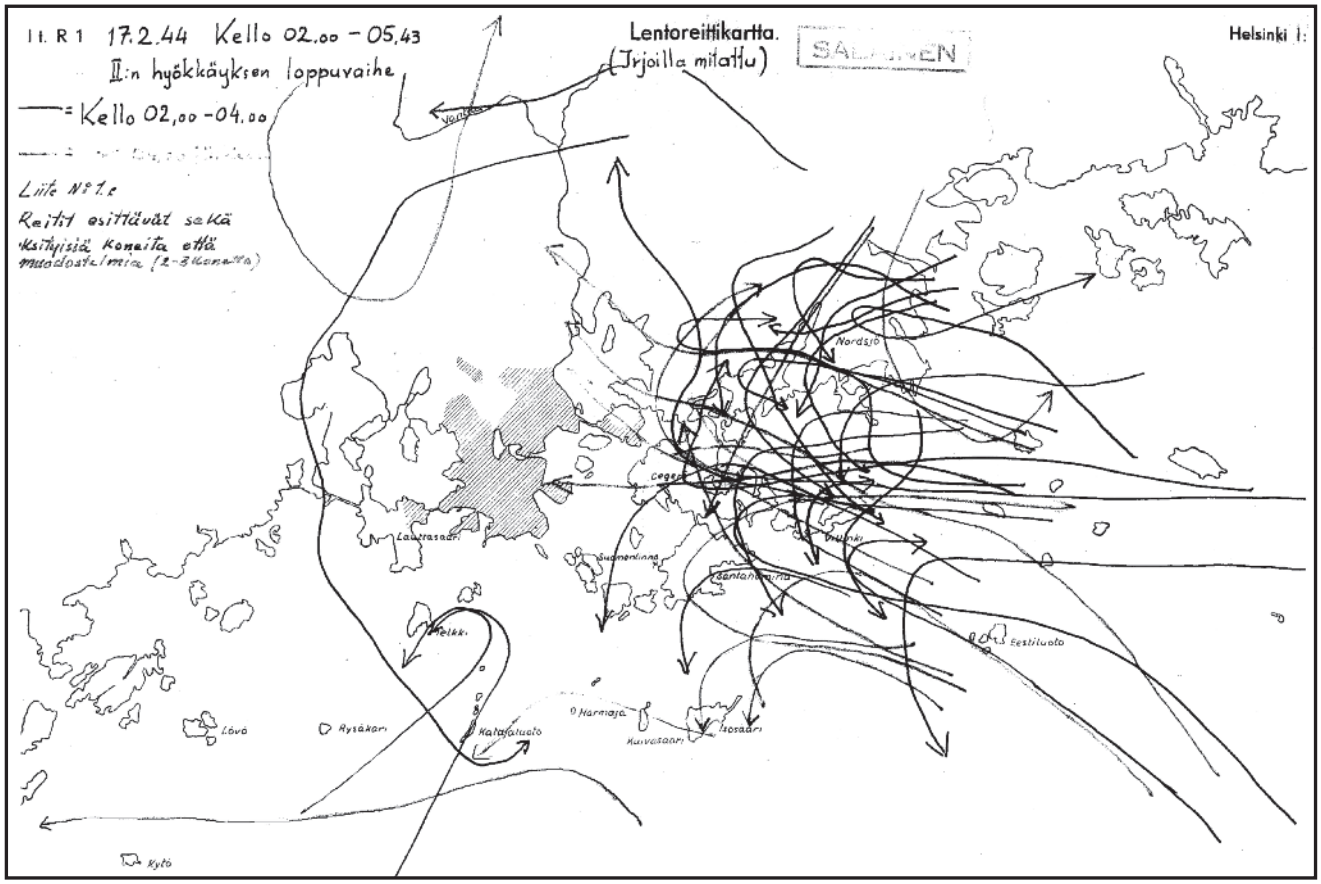
The north-eastern sector was designated Raskas Ilmatorjuntapatteristo 4 (Heavy Air Defence Battalion 4), with eight heavy guns in two batteries, commanded by Major Reino Oksanen with its HQ at Viikki. The batteries were 'Lato', with four captured 76mm Russian guns controlled by Würzburg; and 'Kasa', with four Czech Skoda 75mm.

The north-western sector was designated Ilmatorjuntarykmentti 1:n I Patteristo (First Air Defence Regiment, I Battalion) under Captain Aksel Marte, with 14 heavy guns in three batteries: 'Käpy' with six German 88s controlled by Würzburg; 'Taivas' with four Bofors 76mm; and 'Musta', with four Bofors 76mm. The headquarters was near Munkkivuori.

The south-western sector was designated Ilmatorjuntarykmentti 1:n II Patteristo (First Air Defence Regiment, II Battalion) under Major Kaarlo Seppälä, with the HQ at Melkki and 18 heavy guns in four batteries: 'Puisto', with six German 88s controlled by Würzburg; 'Lautta', with four captured Russian 76mm guns; 'Paja', with four captured Russian 76mm guns; and 'Länsi', also with four captured Russian 76mm guns. In addition, the batteries 'Rata', 'Käpy', and 'Puisto' each had a training battery associated with them. Thirty-six searchlights, in four batteries, were allocated to the four defence sectors and the Würzburgs were supplemented by 14 acoustic direction-finders. Including the training batteries, 77 heavy (i.e. over 75mm) AA pieces were defending an area of 113 square kilometres: one heavy gun per 1.5 square kilometres. To put this into perspective, Berlin in 1944, was defended by one heavy gun per ten square kilometres, while London in 1940 was defended by one heavy gun per 12.5 square kilometres.

Command and control were not neglected. The defences included something similar to a Battle of Britain 'filter centre', located in the Torjuntakeskus (Defence Centre) in central Helsinki, which received reports from the Freyas, from German radar in Tallinn, Estonia, and from visual sightings along the Gulf of Finland. These reports were used to direct the Würzburg radars and listening posts onto the appropriate area and the reports from these were plotted using a system similar to the Seeburg Table, which the Germans used on the Kammhuber Line. Once accurate plots were established, the tactic was for all guns and all searchlights that were in range to concentrate co-ordinated barrage fire on the appropriate one-kilometre grid square. Small wonder that some Soviet pilots got cold feet.

The Soviets did not return to Helsinki until December 17, 1943. Two Pe-2 or Boston reconnaissance aircraft flew over the capital, and at 2000 hours a three-and-a-half-hour raid began, involving only 15 aircraft. It accomplished little, but if the inhabitants of Helsinki had but known it, they were entering the calm before the storm.



THE FEBRUARY 1944 RAIDS

Helsinki's major 'Blitz' began in February 1944 against a background of retreating German forces and a Soviet desire to crush the Finns once and for all. This is the radar plot for the air raid on the night of February 16/17, the heavy tracks being the attack between 2 a.m. and 4 a.m., the lighter ones are the later raid which lasted from 4 a.m. to 5.49 a.m. As the traces show, the majority of the Soviet bombers turned away before reaching the city. None of the Russian pilots appear to have been led astray by the deception operation on Vuosaari (which is identified on the plan by its Swedish name of Nordsjö).

By February of 1944 the Finns were holding the Russians in southern Finland, but German forces in the north were in retreat and Moscow wanted a quick end to what it saw as a northern side-show, thus releasing men and matériel for the more important assault on Berlin. The Soviets quickly convinced themselves that an all-out air attack on Helsinki would bring the Finns to the negotiating table. Soviet tactics in these last three raids were noticeably different from earlier attacks, prompting one Finn to remark to this author: 'Someone had been giving Ivan lessons'. The Finns, too, had learned further lessons.

The assault began on February 6-7, 1944. Between 0843 and 1016 hours on the 6th, the Helsinki Freya tracked a single Soviet aircraft which overflew the city and then returned to base. At 1435 hours a similar overflight caused a 20-minute alarm. The Torjuntakeskus somehow failed to appreciate that these were weather reconnaissance flights and draw the appropriate conclusions. At 1816 hours, Ivak (Ilmavalvonta-aluekeskus — Air Control Centre) received reports of aircraft engine noises over the Gulf of Finland and ordered the Freyas to search to the east. Twenty minutes later, German radar in Tallinn sent a warning of an air attack. A general air alarm was issued at 1851 hours.

The assault came in two waves: the first lasted from 1923 to 2135 hours; the second, from 0108 to 0455. For the first time, the Soviet forces used 'pathfinder' techniques, clearly based on British experience, marking the target with coloured flares. The Finns originally estimated that 216 aircraft took part, dropping at least 2,500 bombs of which only 331 fell within the air defence zone. Russian archives show 728 aircraft dropping 6,991 bombs — a big difference. Finnish heavy AA guns fired 7,719 rounds. In addition, 2,181 40mm rounds and 584 rounds of 20mm were fired. Again caught off-guard, the city suffered more heavily than in later raids: 88 persons were killed, with a further 15 succumbing to injuries; 91 were listed as severely injured, while 226 were lightly

This is the corner of Kaisaniemenkatu and Vuorikatu on the night of February 6/7.

Later construction of the Helsinki Metro has led to the original staircase being raplaced.

Left: **The morning after on Oikokatu where No. 9 on the left has received a direct hit.** *Above:* **This was a somewhat dangerous comparison to take as Cris had to lean out over a 30-foot drop.**

injured; 28 buildings were destroyed, including the former Soviet embassy on Bulevardi. The ruins were demolished after the war and the bricks recycled to build dormitories for the Technical University (destroyed in 1939] on its new campus at Otaniemi.

A second evacuation of Helsinki was begun and Finland requested assistance from Germany. German night fighters — six Me 109 of JG302 — arrived in Malmi, near Helsinki, about a week later and the German night-fighter control ship *Togo* took up station in the Gulf of Finland on February 15. *Togo* was fitted with a Freya search radar, a Würzburg Riese precision tracking radar, and two sets of Y-Anlage Heinrich IV fighter control systems. *Togo* carried three 105mm heavy flak and up to 30 37mm and 20mm light flak guns, some on quad mounts. She also carried four rocket launchers, though details of these are obscure. Thus, by the time of the second attack on February 16-17 the defences were more effective, the population more alert.

A first wave of 120-160 bombers attacked from 1947 to 2315 hours and was followed by a second 'tiring' wave from 2319 to 0549 hours, involving up to 300 aircraft. Of an estimated 4,000 bombs dropped (4,317 by Soviet records), only 130 landed within the air defence zone. Heavy AA guns fired 12,238 shells; 40mm guns 3,735 shells; and 20mm guns 1,974. German night fighters, operating from Malmi, shot down two bombers. Compared to the February 6-7 raid, casualties were relatively light: 16 were killed, with a further 11 succumbing later; 16 were seriously injured and 20 received minor injuries; 22 buildings were destroyed.

The final raid came ten days later on February 26-27. Soviet bombers attacked in three waves, in good visibility, with no moon, beginning at 1843 hours. The All-Clear was sounded at 0630 hours the following day, suggesting a 12-hour raid, though some historians say that the last bombs fell around 0430, others at 0510.

The first wave lasted from 1843 to 2230 hours and an estimated 250 aircraft attacked in large formations of up to 50 aircraft, again using target markers. Though the general approach was from the east, the Soviet force also adopted the rather risky tactic of attacking simultaneously from different directions. The first wave started some 15 major fires in the air defence zone.

The second wave also lasted about four hours, from 2230 to 0230 hours and was clearly intended to disrupt the work of the firefighters — a new tactic for the Russians, though one regularly used by Britain and the US. Over 150 aircraft attacked mainly from the east, singly or in formations of two or three; almost all were turned back by anti-aircraft fire or were misled by the Vuosaari deception operation.

The third and final wave lasted from 0230 to 0505 hours and involved over 200 aircraft attacking from different directions in formations of two to ten aircraft. In the second and third phases, many of the attacking aircraft jettisoned their bombs as soon as they were illuminated by searchlights — however briefly.

Considering the 600 or so sorties flown (Russian records show 896) by medium and light bombers such as Il-4, Li-2, Pe-8, B-25 Mitchells and A-20 Bostons, only about 100 overflew the target and the raid was a failure. Property damage was significantly higher than in the two earlier raids, with 59 buildings being destroyed. Sixty-seven fires were started in the city, of which 50 were still burning in the morning and the majority of the buildings destroyed appear to have been lost to fire. (To place the raid in perspective, while not exactly comparable, the German raid on Coventry, UK, on the night of November 14/15, 1940, which involved 509 sorties, killed 380 people and injured 865. Twelve armaments factories and much of the city centre were destroyed. Coventry had about half the population of Helsinki at the time, but was more densely packed than the Finnish city.)

The Finns had 77 heavy AA guns operational before the raid, and 320 heavy fire barrages were ordered, firing 14,200 rounds. About 20 40mm guns fired some 4,432 rounds; 20mm guns were not used, as the bombers operated at 4-5,000 metres altitude. The anti-aircraft batteries claimed eight aircraft shot down. Searchlights caught 15 aircraft for over three minutes and 20 aircraft for shorter time, allowing night fighters to attack; several bombers jettisoned their bombs when being caught by the searchlights. German night fighters, operating from Malmi, shot down four bombers and the anti-aircraft artillery claimed 14, with eight apparently confirmed. Three Soviet aircraft were claimed as damaged. Only about ten per cent of the attacking aircraft penetrated the air defence zone, and only half of these bombed. Only 338 bombs were dropped within the air defence zone, about four per cent of the estimated total bomb load.

Although some damage was caused by blast, as on Oikokatu, Mannerheimintie and Lutherinkatu, most of the destruction was caused by fire and several major buildings in the city centre were severely damaged. Particularly badly hit were Helsinki University, whose elegant neo-classical facade still stands in Senate Square, and the Ministry of Defence.

There is little doubt that the relatively small amount of damage caused to Helsinki by these three raids was due to effective anti-aircraft artillery. About 80 guns of 75mm or larger defended the city, compared to about 20 in 1939-40. One of the 88mm batteries was on the island of Lauttasaari, some four kilometres south-west of the centre of Helsinki, which today houses a rather scanty memorial to the air defences. Another 88mm battery lay in the Kaivopuisto park, south of the city centre, then as now a popular place to relax and much used by children for tobogganing in the winter.

Following the February raids, the Finnish authorities mounted an inquiry. Several factors were cited as contributing to the successful defence of the city. According to a quasi-official history, the radar systems which Finland had purchased from Germany in the latter half of 1943 had been the decisive

Helsinki University in Senate Square was burned out on the night of the big raid on February 26/27.

factor. That, together with training, training, and more training. Curiously, the official report tends rather to underestimate the Soviets' efforts. While noting that the staff and equipment of the ADD (Aviatsija Dalnego Dejstvija — Long-range Bomber Aviation) was the best that the Soviets could muster, tactics were poor and were 'no more than what Harris had tried against Cologne in 1942'. These tactics, to the Finns merely consisted of a massive attack, followed by a 'tiring stream' to disrupt subsequent fire-fighting and rescue. However, these tactics were far less effective than when used by the British because the Soviet aircrew lacked the discipline of their counterparts in the RAF. Much was made in the analysis of how easily deterred the Soviet pilots were, and how easily deceived.

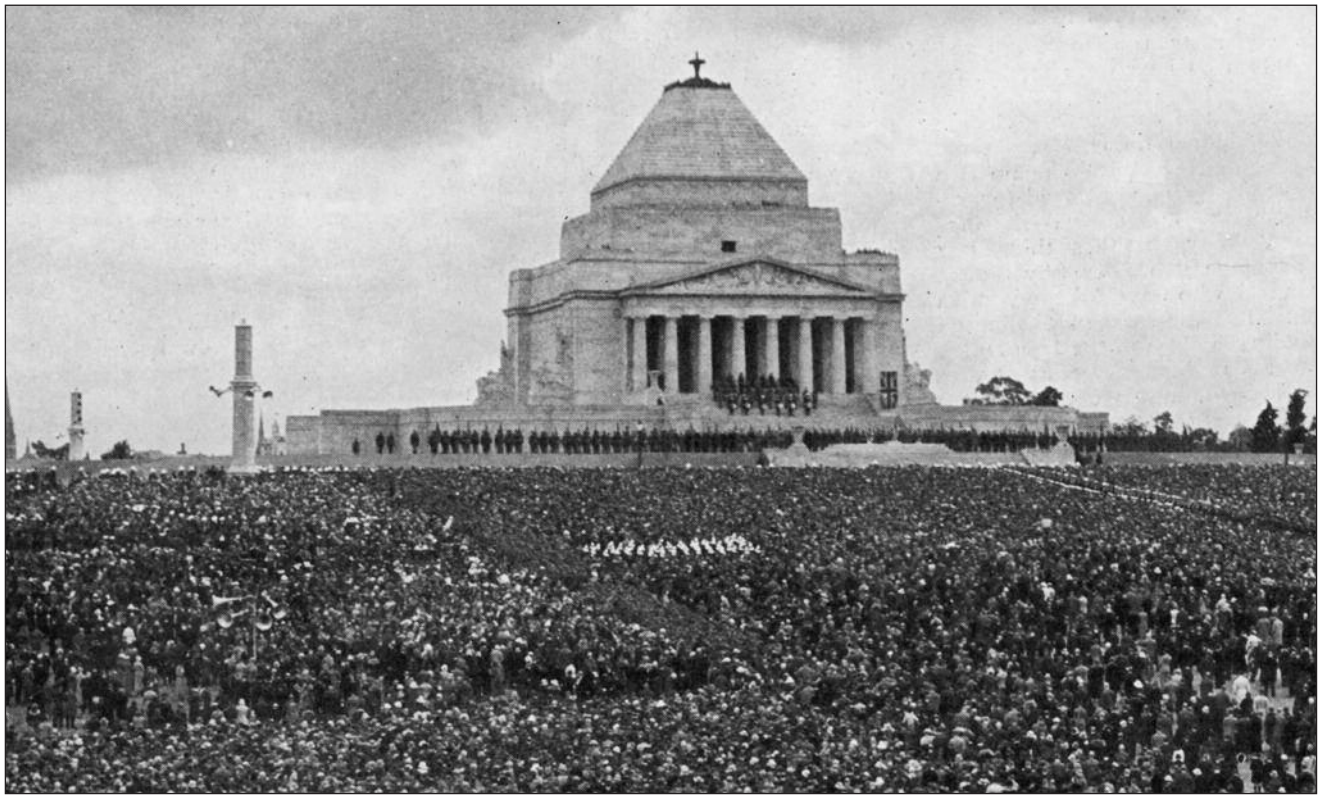
Which leads to the question of deception operations, which have been greatly emphasised in post-war histories. About 15 kilometres east of Helsinki, at Vuosaari (part of the mainland and not an island, as the 'saari' suffix suggests), the coastline slightly — very slightly — resembles that of downtown Helsinki. After a plan by Lieutenant-Colonel Pekka Jokipaltio, several flak guns and searchlights were placed there, and large fires were lit to imitate fires in the town. Many aircraft approaching from the east are alleged to have dropped their bomb-loads there. There are several problems with this story. Firstly, contemporary maps show one heavy AA battery on the western peninsula of Vuosaari, apparently at Rastila; a second about 1.5 kilometre north-west of there, apparently at Vartiokylä; and three searchlight batteries spread across the eastern side of Vuosaari. These would hardly have been sufficient to deter even Soviet pilots. The second problem is the lack of photographic evidence in the archives of any deception installations on Vuosaari. This is not proof that that they did not exist but, like the dog that failed to bark in the night, it is curious — especially in the light of the extensive photograph collections for everywhere else.

One consequence of the February raids was that the Finns realised for the first time the deterrent effect of searchlights on Soviet pilots and immediately began to increase the number of batteries. Faced with a manpower shortage, they decided to train women for the task. On May 30, 1944, 215 members of the Lotta Svärd, the women's auxiliary, began to train as searchlight operators. By August 1, 176 were operational — the high drop-out rate reflecting the rigorous training. On September 24, they were released from service. The commander's Order of the Day stated: 'The Finnish woman is always ready to stand by her man when the fatherland is experiencing difficult times and your sacrifice was the most shining example in this respect because you did not just stand beside — you replaced the man.' So critical was the manpower shortage that teenagers were recruited as auxiliaries.

On August 2, President Ryti resigned, giving up his promise to stand beside Germany, and Mannerheim was appointed President by the Parliament. As a result, the Soviet Union no longer demanded Finland's capitulation and the amount of reparations Finland would have to pay was halved compared to earlier demands. The cease-fire officially began at 0700 hours on September 4, 1944 (September 5 for the Soviets). On September 19, the Eduskunta, the Finnish parliament, accepted the armistice terms without a vote.

AFTERMATH

An agreement on 'interim peace' (armistice with preliminary peace terms) between the Soviet Union and Finland was signed in Moscow on September 19, 1944, and the final peace agreement in Paris not until February 10, 1947. Finland lost the same areas as in the Winter War, plus Petsamo and access to the Barents Sea in the north, and instead of Hanko, whose swampy airfield had been less than satisfactory, the Soviet Union took a base on the Porkkala peninsula, about 30 kilometres west of Helsinki, on a 50-year lease, which was returned in 1956. Heavy reparations were paid. A Soviet Control Commission (with British and American observers) was stationed in Helsinki from 1944 to 1947 to ensure that the terms were followed. The Control Commission later demanded trial for war guilt and sentenced a handful of leaders to prison for few years. One thing the Soviet members of the Control Commission immediately demanded was to inspect the bomb damage. They were too late; the Finns had re-built speedily. With straight faces, the Finns took the Soviet delegation to see the shrapnel marks on the plinth of the statue of J. V. Snellman, founder of the Bank of Finland. They remain today, one of the few surviving traces of the bombing of Helsinki.



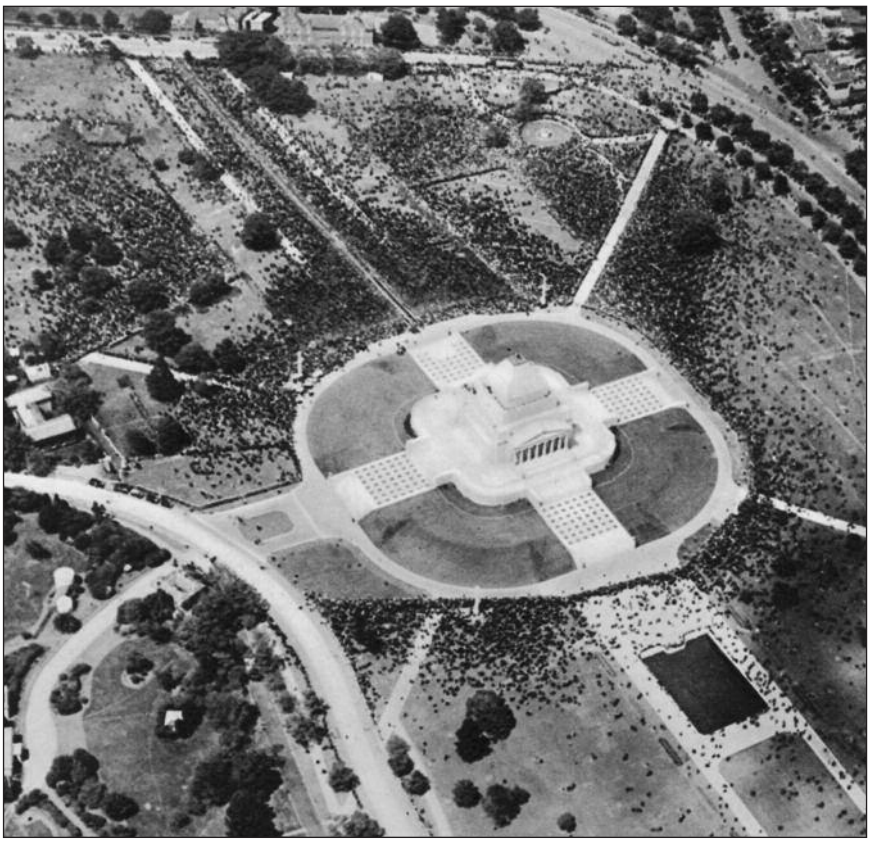
VICTORIA'S SHRINE OF REMEMBRANCE

By David Mitchelhill-Green

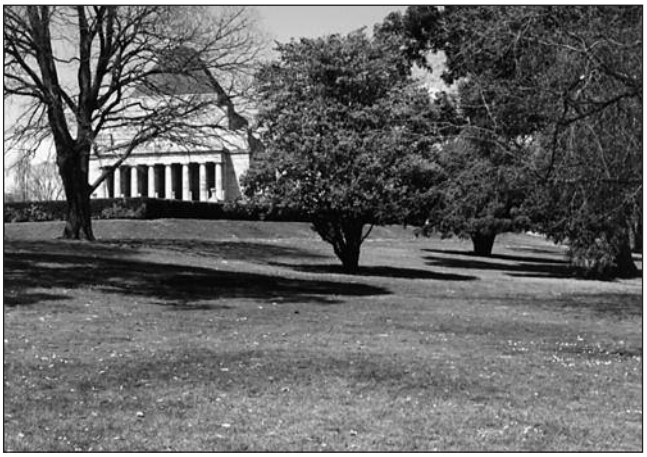
For many visitors to the Australian city of Melbourne, one of the most recognisable landmarks is an imposing monument originally dedicated to the fallen of the First World War — the Shrine of Remembrance. While this memorial was originally dedicated to soldiers from the state of Victoria who died during World War I, today it serves as a focal point to remember those Australians who served and fell in all conflicts up until the present day.

The heavy losses of the Great War were especially felt in the newly-federated nation of Australia. From a country whose population in 1914 was less than five million, some 300,000 men volunteered to serve in the armed forces. Of this number, over 60,000 died and a further 156,000 suffered injuries or were taken prisoner of war (see *After the Battle* No. 125). In the southern Australian state of Victoria alone — whose population at the time numbered little more than a million — some 89,100 personnel served overseas, of whom 19,000 were killed and thousands more wounded.

Three years after the signing of the Armistice in November 1918, Melbourne's Lord Mayor mooted the idea of constructing a large state memorial to honour and remember Victoria's war dead. His proposal, however, was quickly embroiled in controversy as to what form such a memorial should take and where it should be located. With advice from the War Memorials Advisory Committee that the memorial should be located in a prominent area of the city 'under the direct observation of many passers-by', Australian architects and artists, and British citizens living in Australia, were invited to submit suitable designs. Debate immediately began over whether the proposed structure should be utilitarian or not and how it would be funded. Altogether 83 submissions were received: designs ranging from a triumphal arch, a copy of the Cenotaph in London, and a new hospital, to more fanciful concepts such as a replica of India's Taj Mahal and the French Eiffel Tower.



The dedication of Melbourne's magnificent First World War Memorial — the Shrine of Remembrance — on November 11, 1934 was attended by over 300,000 people. (Illustrated London News)



No sooner had the memorial been completed to commemorate 'the war to end all wars', than the world was plunged into a second conflict. Here slit trenches are dug in the lawns surrounding the shrine. (AWM)

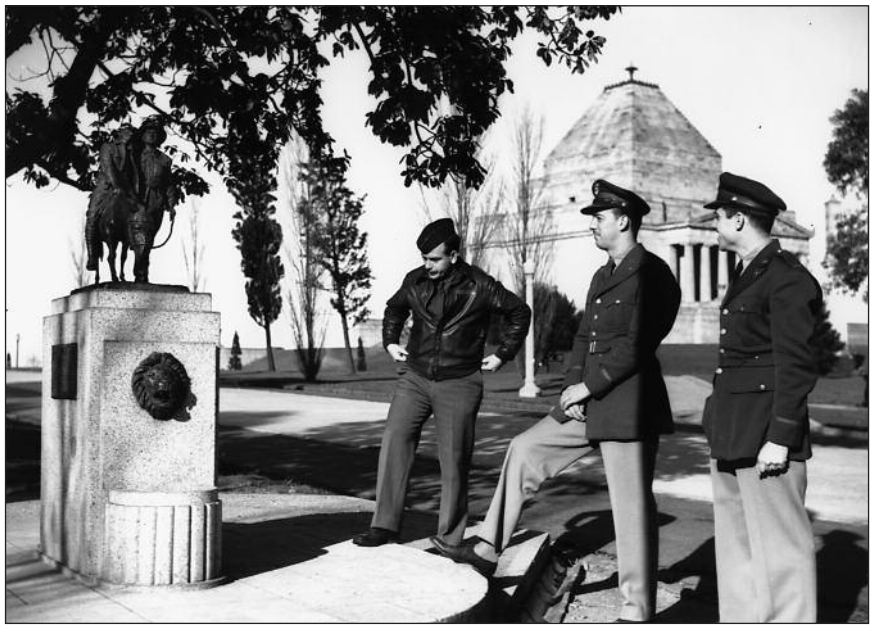
The winning design of the Shrine was modelled on the mausoleum at Harlicarnassos in Greece — one of the Seven Wonders of the Ancient World. In contrast to the many smaller war memorials being erected around the country, architects Phillip Hudson and James Wardrop held that the memorial should have an interior for quiet reflection, while the exterior would offer a large public space where crowds could gather for remembrance ceremonies.

Eventually, after much debate, and the intervention of the war hero General Sir John Monash, it was finally decided in 1926 that a 'Shrine of Remembrance' would be constructed as 'the only War Memorial worthy of Victoria's unparalleled efforts in the Great War'.

The foundation stone for the Shrine was laid the following year on Armistice Day, November 11, 1927. Soon afterwards, however, the ambitious project was threatened as the world plunged into the Great Depression. Despite the economic difficulties and high unemployment, a public appeal was launched, which, together with fund-raising by school children, successfully collected the necessary finance within six months to allow construction to continue. Finally completed in 1933, the largest crowd in Australian history — in excess of 300,000 people — gathered at the dedication ceremony held on November 11, 1934, to witness Prince Henry, the Duke of Gloucester (the third son of King George V), officially open the memorial. Also present was the poet to the British Empire, Rudyard Kipling, who composed a poem especially for the occasion. According to a contemporary newspaper headline the ceremony was 'Solemn, Impressive, [and] Inspiring'.

During the Second World War the august memorial reflected the impact of a war much closer to home. Because of the threat of Japanese aerial attack, slit trenches were dug in the surrounding lawns. The war in the Pacific led to an influx of American service personnel into Melbourne, many of whom, including General Douglas MacArthur, visited the Shrine. The Shrine was also point of remembrance for a new generation serving in the military and in 1945 it was the venue for services and parades celebrating victory in Europe and the Pacific.

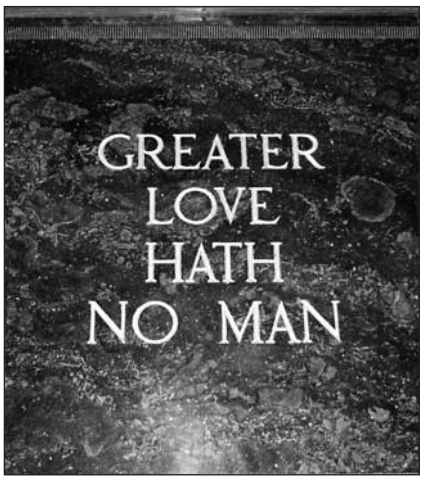
During the Second World War some 297,000 Victorians enlisted and 5,900 were killed. To honour this sacrifice a cenotaph was erected in the front courtyard — a 41-foot-high column representing six men of the three services carrying a dead comrade draped with the Australian flag. Nearby burns the Eternal Flame, lit by Queen Elizabeth II in the presence of over 150,000 people during the opening of the Shrine forecourt memorial on February 28, 1954.



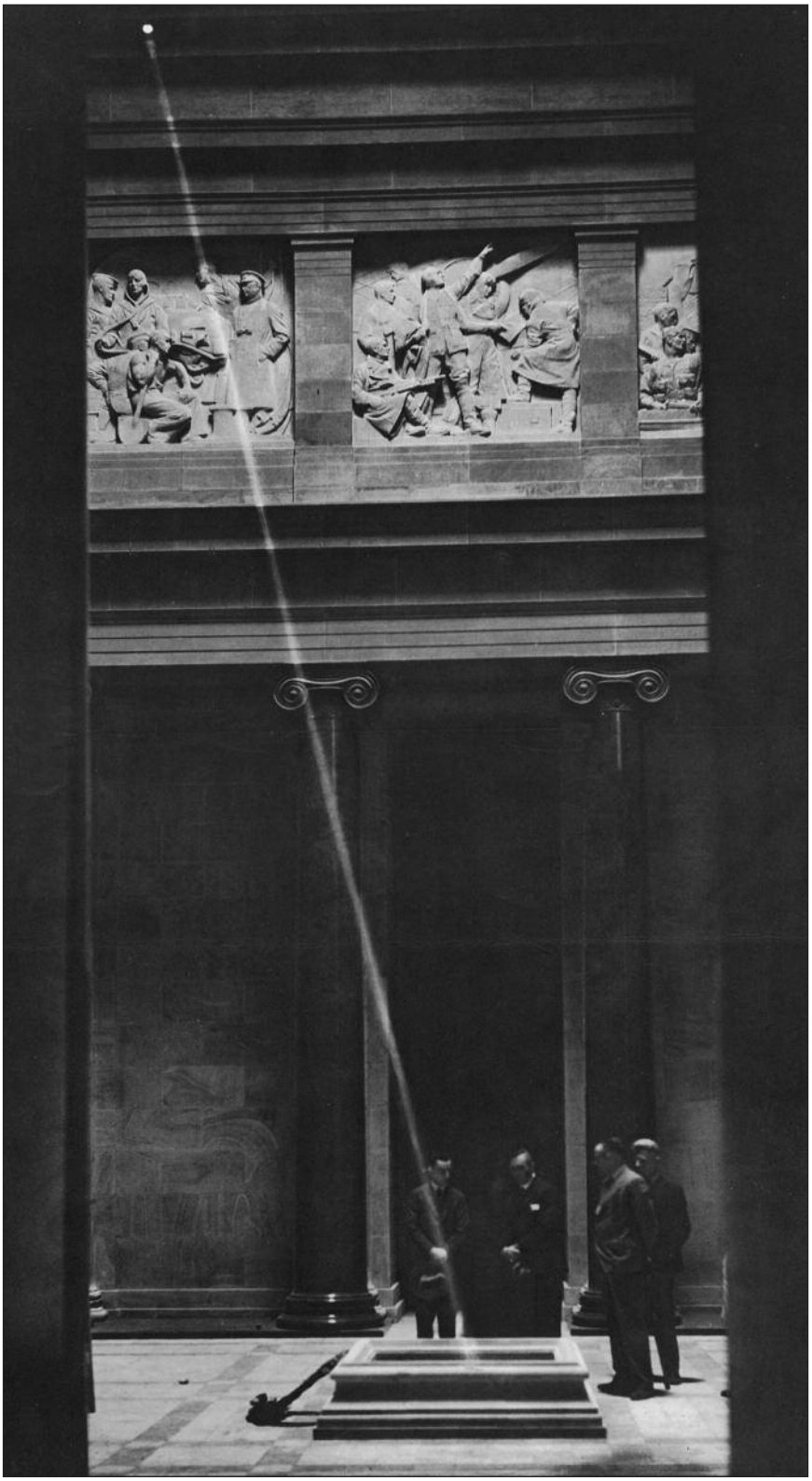
June 1942: American officers, newly arrived in Australia, inspect Simpson's Monument which stands nearby. Private John Simpson Kirkpatrick served in Gallipoli in the First World War and was renowned for bringing in wounded men on his donkey before he was killed (see *Gallipoli Then and Now*). (AWM)

The new entrance and visitors' centre was opened in August 2003.

Apart from the majesty of the building (which was designed by the Melbourne architects Phillip Hudson and James Wardrop, it was the concept of invoking the heavens by incorporating 'The Eye of Light' which is probably the most striking feature of the Shrine. *Above:* **Calculations were made by the Victorian Government Astronomer Mr F. J. Doolan and Dr J. M. Baldwin, to fix the precise axis of the building to ensure that at exactly 11 a.m. on November 11, a shaft of sunlight would penetrate an aperture and light the inscription on the Rock of Remembrance** *(below)*.



For the technically minded, the 'Eye' itself had a predetermined diameter of three inches in the inside wall, the position of which was fixed by the calculated mean position of the sun at 11 o'clock Standard time for November 11. It was then necessary to compute the size, shape, and orientation of an aperture which was to be left in the outer wall, so that it would include every position of the sun at the annual critical moment, with due regard to the considerable range of variation in both directions as calculated by the astronomer. This range of variation totalled 15 seconds of time in the Hour Angle governed by the change in the Equation of Time, and 36 minutes of Arc in Azimuth due to the yearly change in declination. The bearing of the main Swanston Street axis of the Shrine was determined in relation to the true meridian by solar observations, and the true position of the centre of the mean position of the shaft of sunlight was then set out accurately on the form work, so that apertures in the concrete superstructure could be left in both the inner and outer walls of the memorial.



Although the calculations were made so that the 'Eye of Light' would illuminate the Rock of Remembrance, the path of the shaft of light across the Rock varies slightly from year to year, but it returns almost exactly to the path it traversed four years earlier. The fact that the last year of the century is not a leap year unless the year number is divisible by 400 ensures further adjustment, so that the path will always, century after century, pass close to the centre of the Rock. The position of the aperture was computed so that the shaft of light is closest to the centre of the Rock at 11 a.m. This corresponds to a definite time before the sun crosses the meridian. The Standard time at which the sun crosses the meridian changes very slowly, so that after 2,300 years it will cross almost two minutes later than it did in 1934. In 2000 years it will cross at the same hour as it did in the 1930s, and then for several thousand years it will cross earlier and earlier, until it will cross some 13½ minutes earlier. There will thus be a slow swing in the time at which the shaft of light will pass closest to the centre of the Rock of Remembrance, from 11.2 a.m. at latest to 10.46½ a.m. at earliest.

Services of Thanksgiving were held at the memorial on both VE-Day *(above)* and VJ-Day *(right)*. Unfortunately the service on May 9 to mark Victory in Europe was marred by bleak weather (being in the Australian autumn) and a sudden downpour forced the crowds to seek shelter on August 16, 1945. (AWM)

From a monument erected to remember to 'the war to end to all wars', the Shrine of Remembrance now serves as a memorial to all those who have served in Australia's defence force in all wars. Beneath the inner Shrine, the Crypt contains the records of every unit and ship that saw active service, regimental colours, and a towering bronze statue of a father and son in uniform symbolising the two generations of Victorians to have served in world wars. Outside numerous smaller commemorative plaques have been placed below the trees within the Shrine Reserve and dedicated to various WWII units. To the east of the Shrine, the WWI Gallipoli Memorial honours the bravery of John Simpson Kirkpatrick (3rd Australian Field Ambulance) and his two donkeys. Nearby stands a particularly unique tree, a descendant from the original Lone Pine at Gallipoli. A water garden records Australia's participation in more recent conflicts.

Today the Shrine hosts numerous memorial ceremonies, the highlight being the ANZAC Day ceremony on April 25 each year when large crowds gather to remember one of the most revered events in the history of Australia's armed services.

ODE

Rudyard Kipling (1934)

SO LONG as memory, valour, and faith endure,
Let these stones witness, through the years to come,
How once there was a people fenced secure
Behind great waters girdling a far home.

Their own and their land's youth ran side by side
Heedless and headlong as their unyoked seas —
Lavish o'er all, and set in stubborn pride
Of judgment, nurtured by accepted peace.

Thus, suddenly, war took them — seas and skies
Joined with the earth for slaughter. In a breath
They, scoffing at all talk of sacrifice,
Gave themselves without idle words to death.

Thronging as cities throng to watch a game
Or their own herds move southward with the year,
Secretly, swiftly, from their ports they came,
So that before half earth had heard their name
Half earth had learned to speak of them with fear;

Because of certain men who strove to reach,
Through the red surf, the crest no man might hold,
And gave their name for ever to a beach
Which shall outlive Troy's tale when Time is old;

Because of horsemen, gathered apart and hid —
Merciless riders whom Megiddo sent forth
When the outflanking hour struck, and bid
Them close and bar the drove-roads to the north;

And those who, when men feared the last March flood
Of Western war had risen beyond recall,
Stormed through the night from Amiens and made good,
At their glad cost, the breach that perilled all.

Then they returned to their desired land
The kindly cities and plains where they were bred —
Having revealed their nation in earth's sight
So long as sacrifice and honour stand,
And their own sun at the hushed hour shall light
The shrine of these their dead!